09/423817

Fig.1

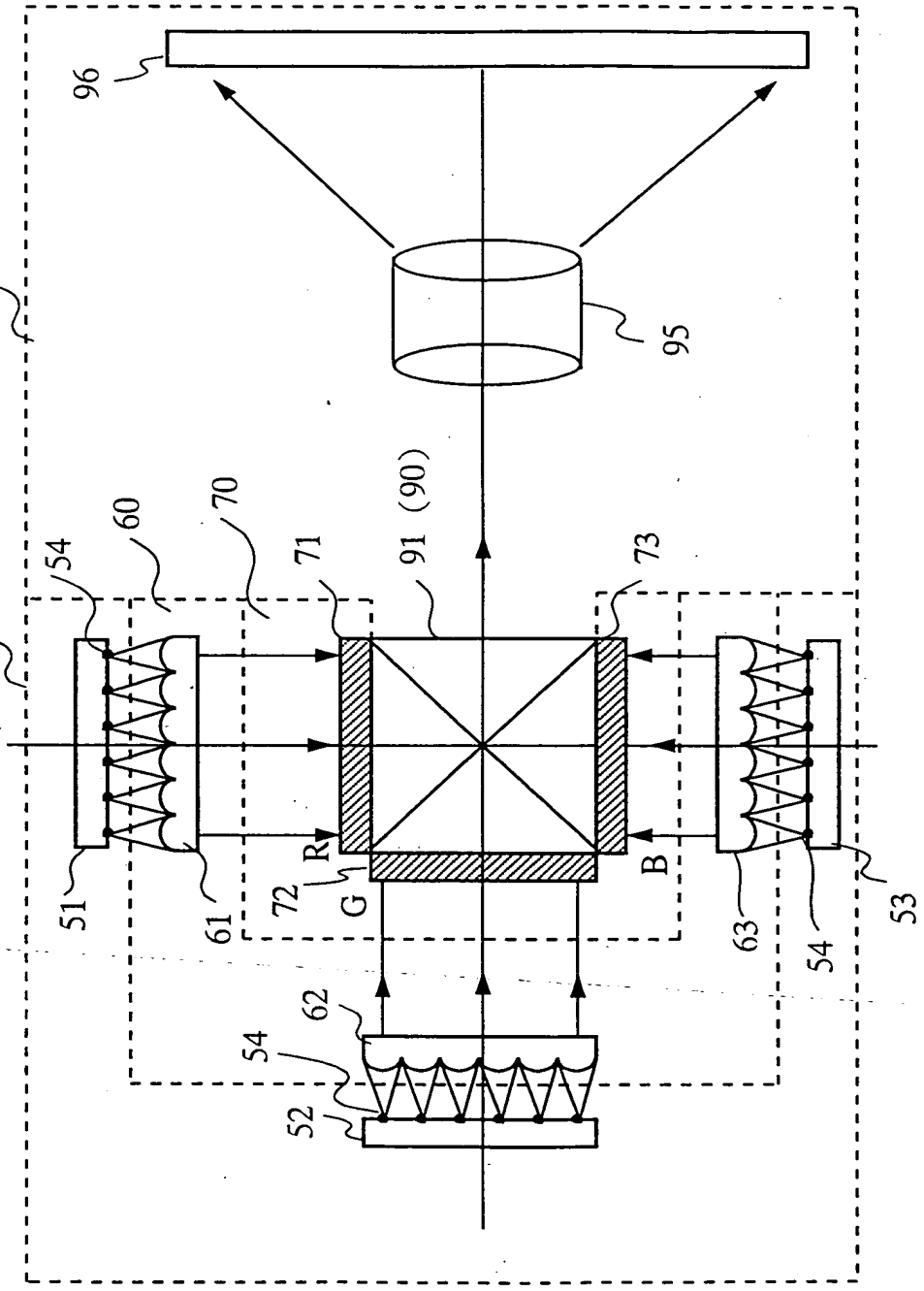


Fig.2

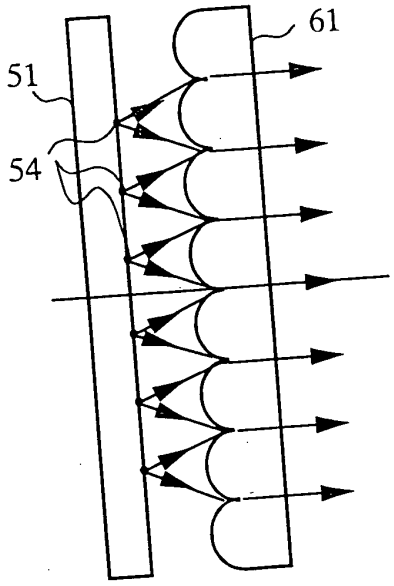


Fig.3

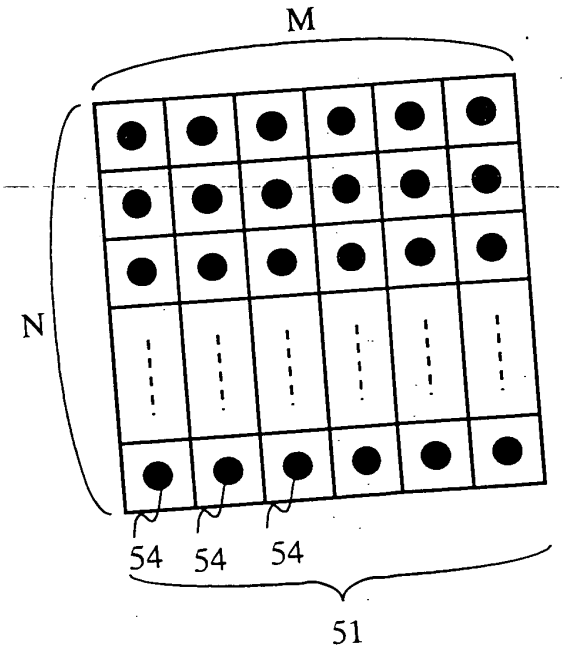
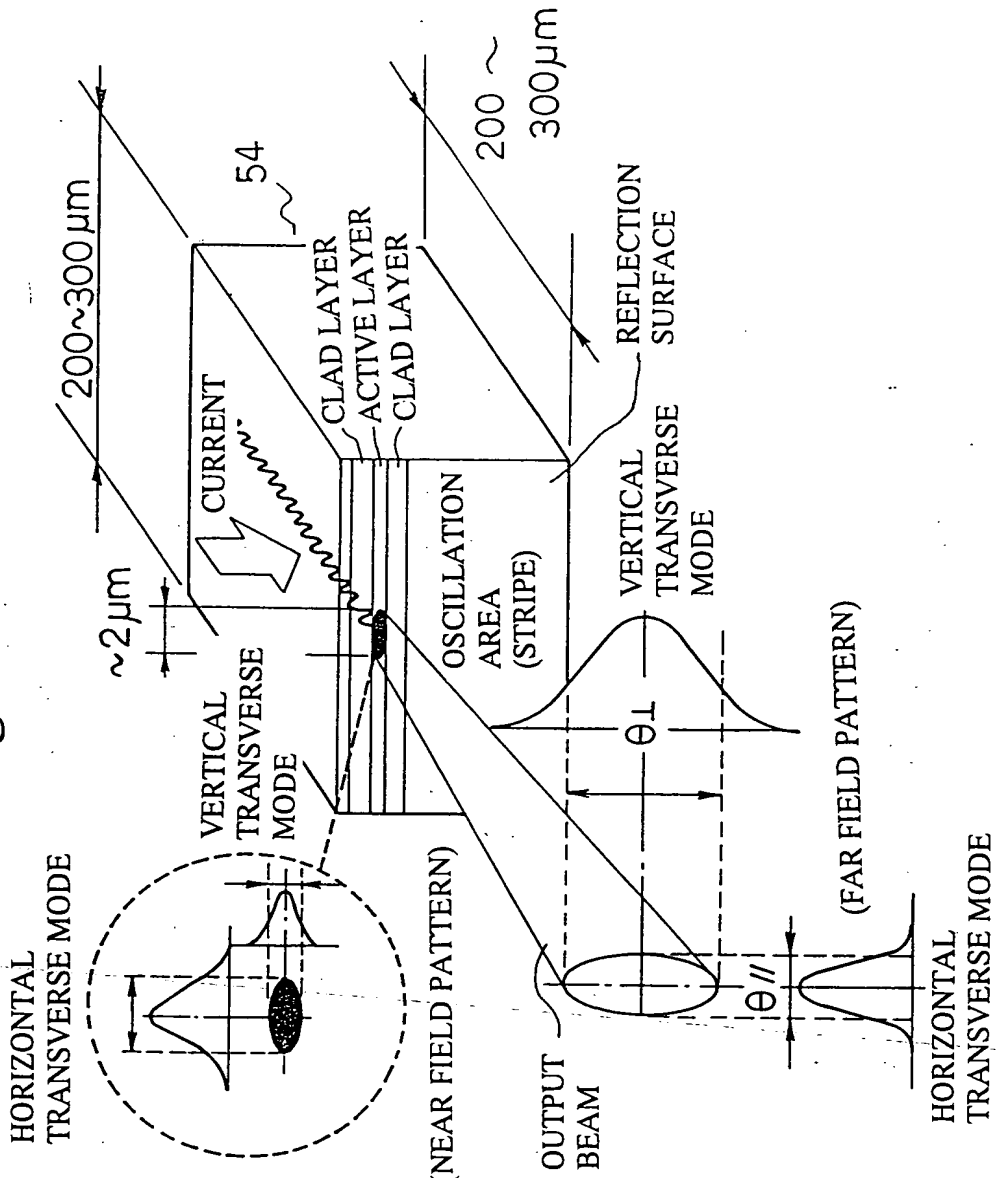


Fig.4


200~300μm
~2μm
54
CURRENT
CLAD LAYER
ACTIVE LAYER
CLAD LAYER
200 ~ 300μm
REFLECTION SURFACE
OSCILLATION AREA (STRIPE)
VERTICAL TRANSVERSE MODE
HORIZONTAL TRANSVERSE MODE
(NEAR FIELD PATTERN)
θ⊥
θ//
OUTPUT BEAM
(FAR FIELD PATTERN)
HORIZONTAL TRANSVERSE MODE

09/423817

SUBSTITUTE SHEET (RULE 26)

Fig.5

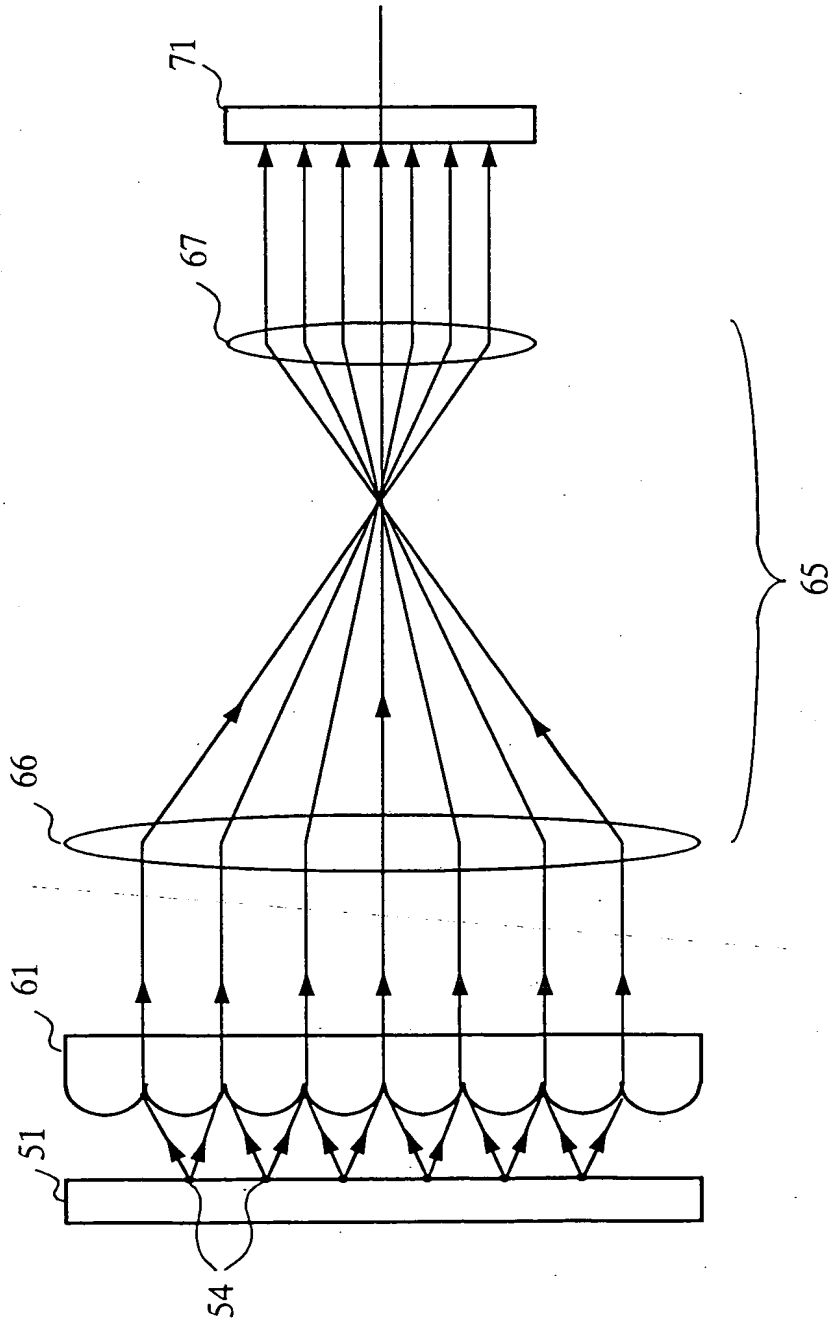


Fig.6

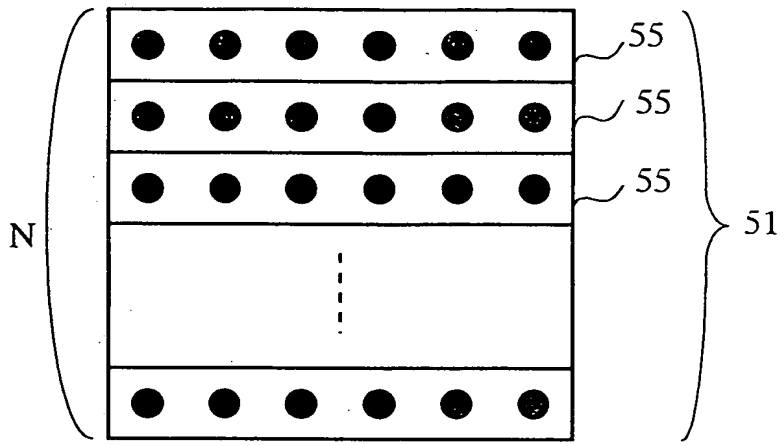


Fig.7

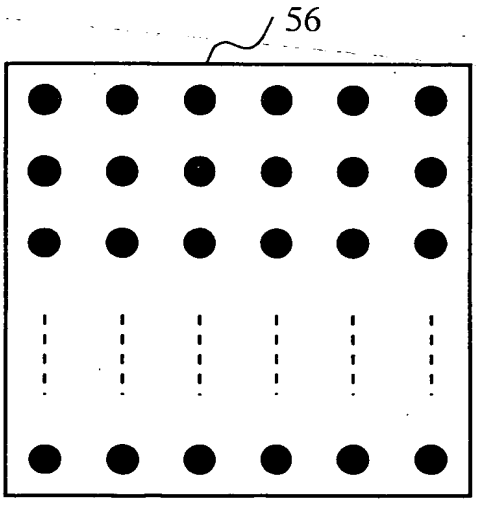
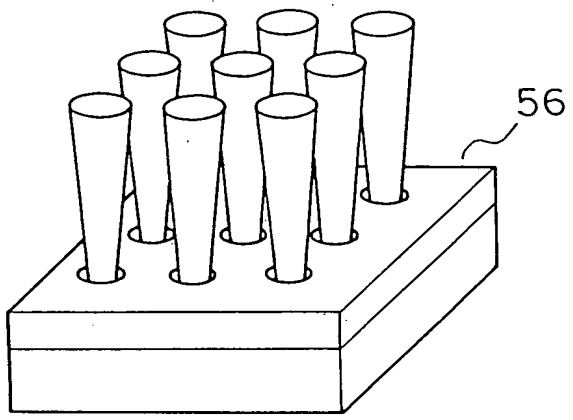
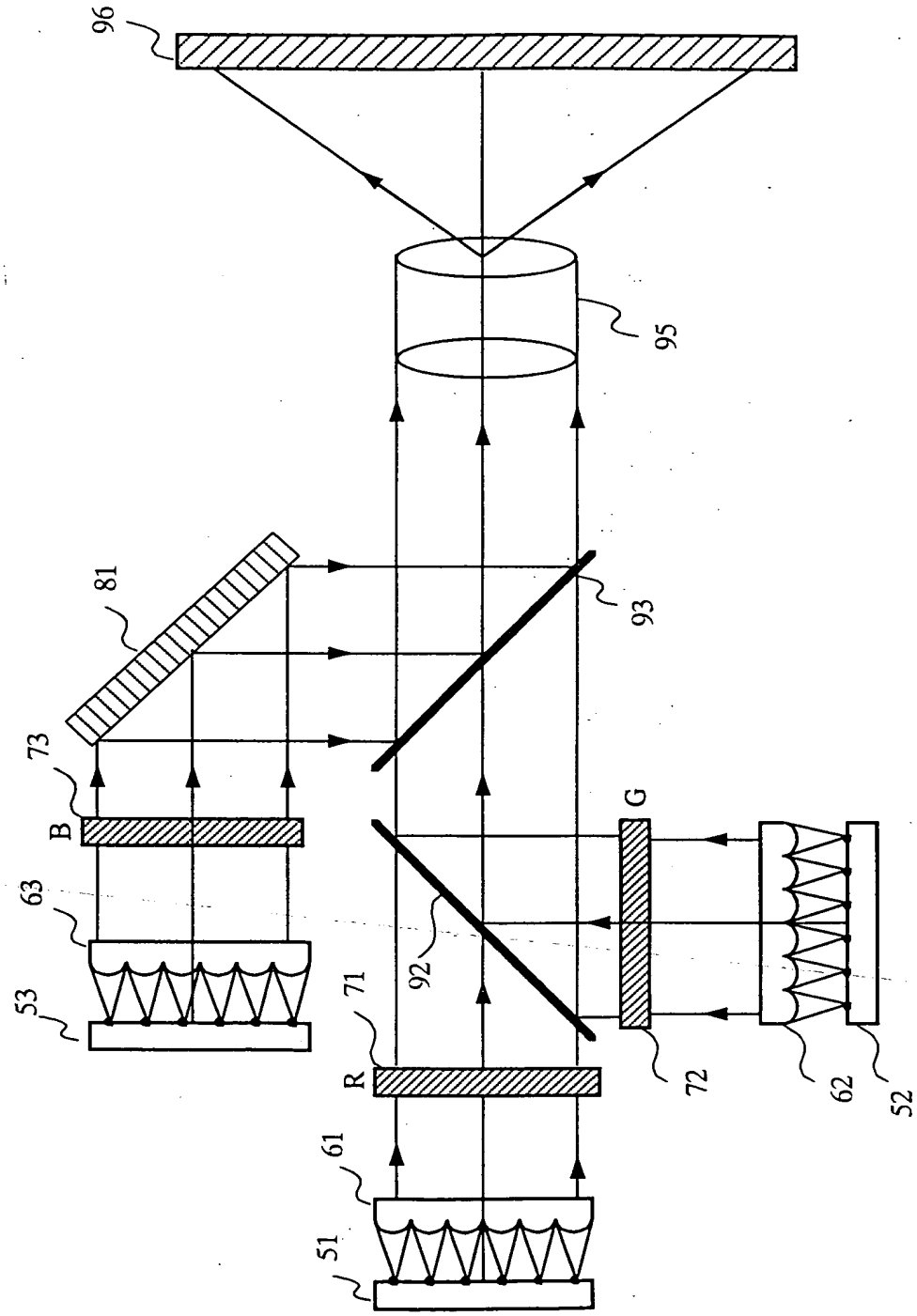


Fig.8



SUBSTITUTE SHEET (RULE 26)

Fig.9



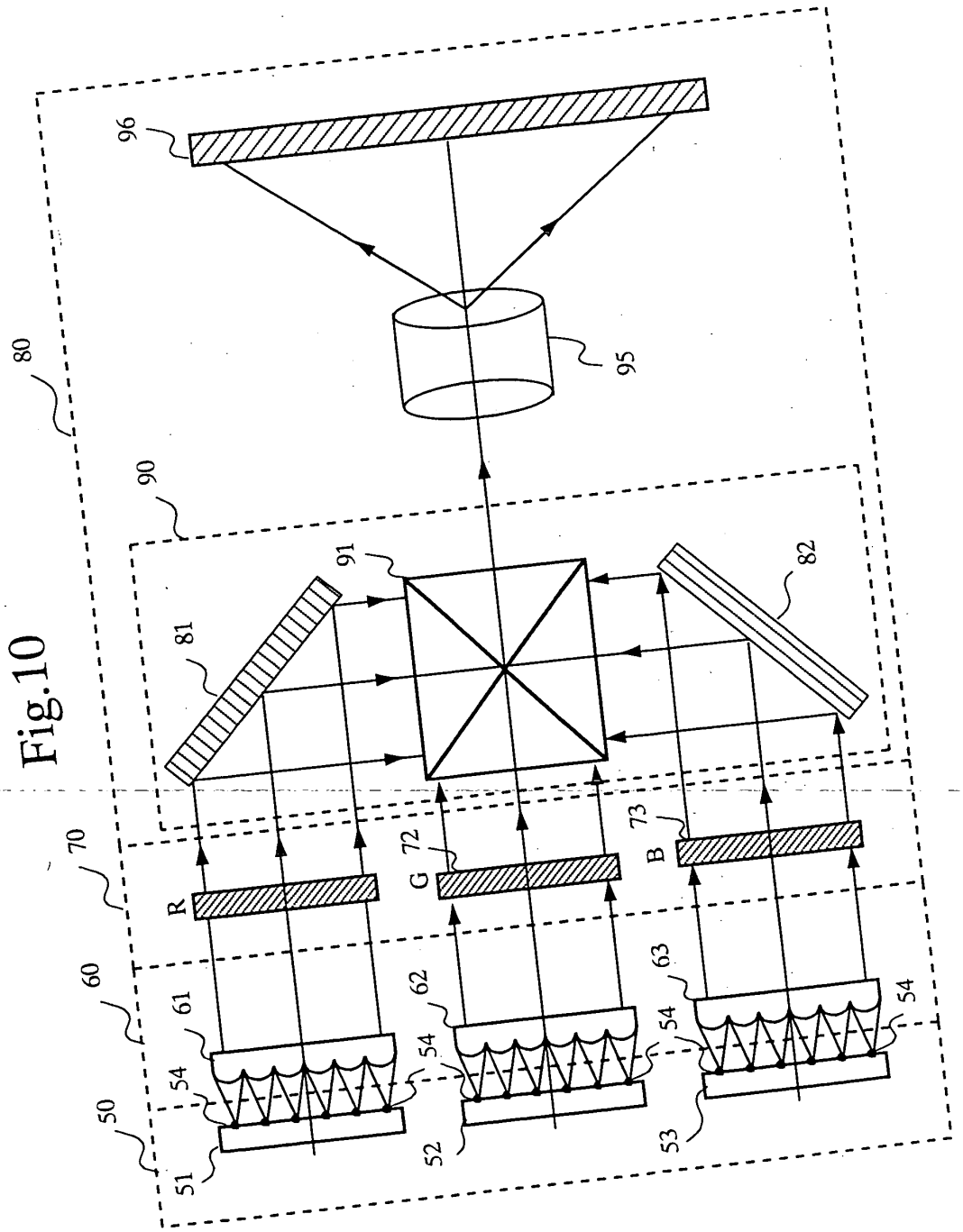


Fig.10

Fig.11

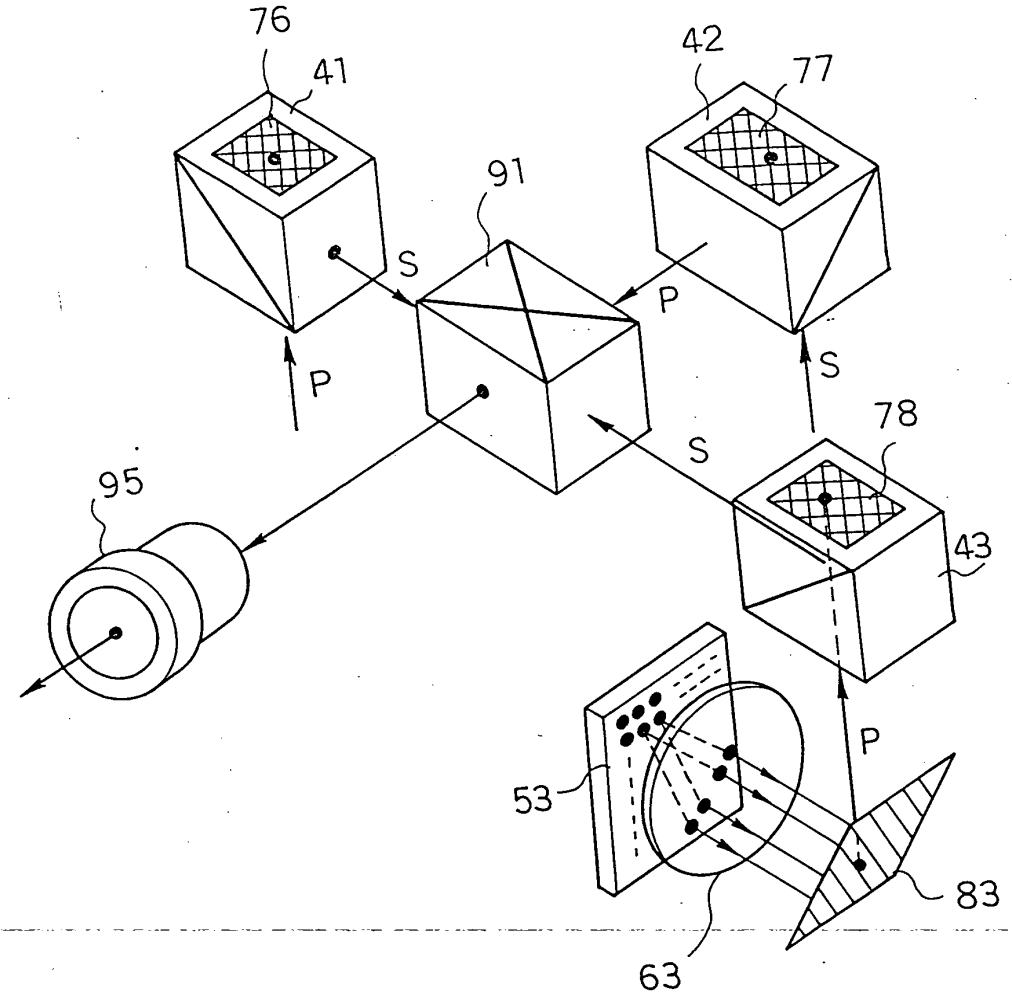
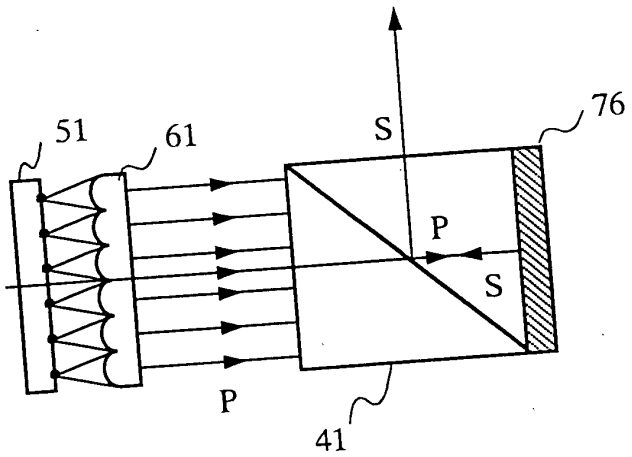
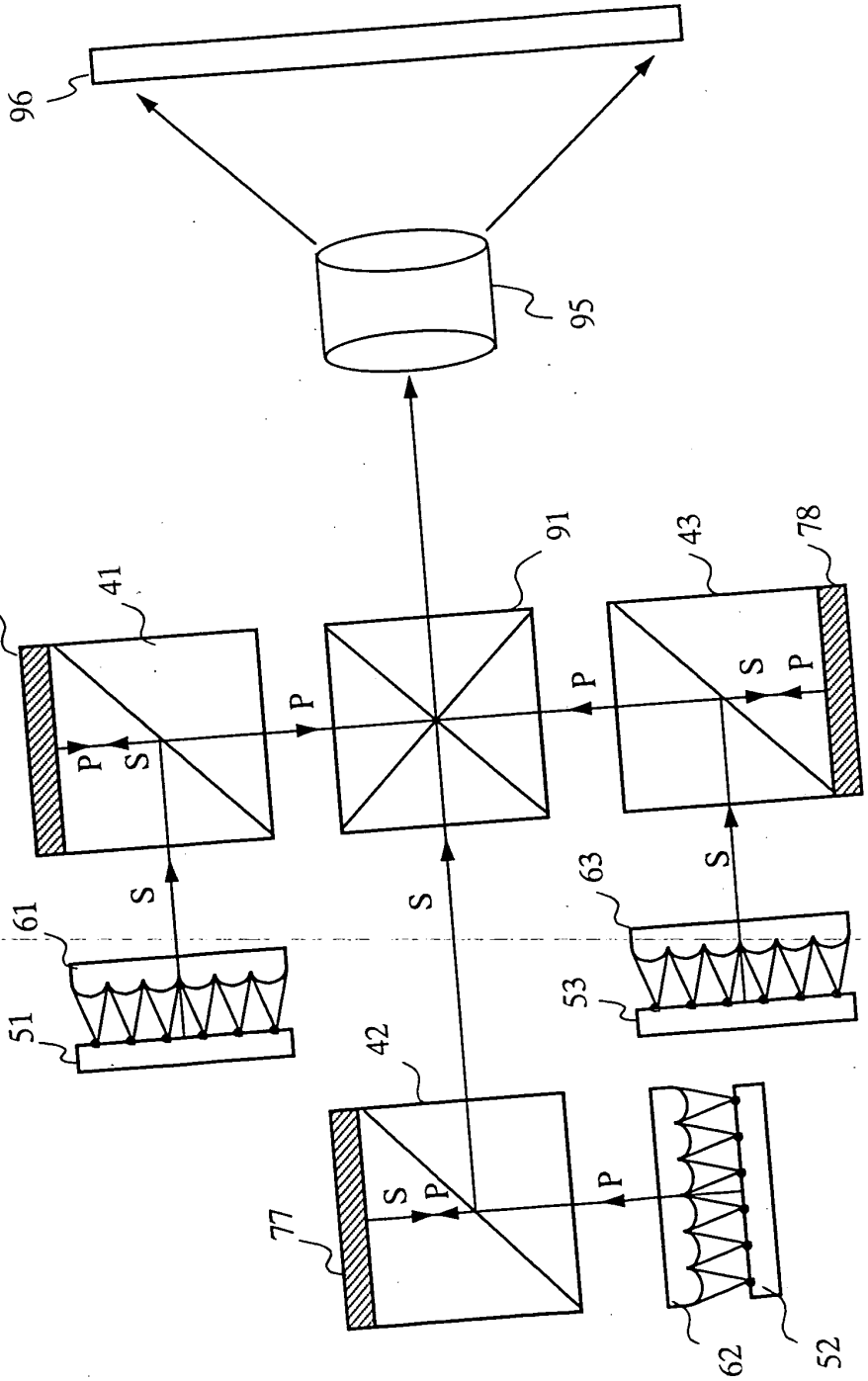


Fig.12



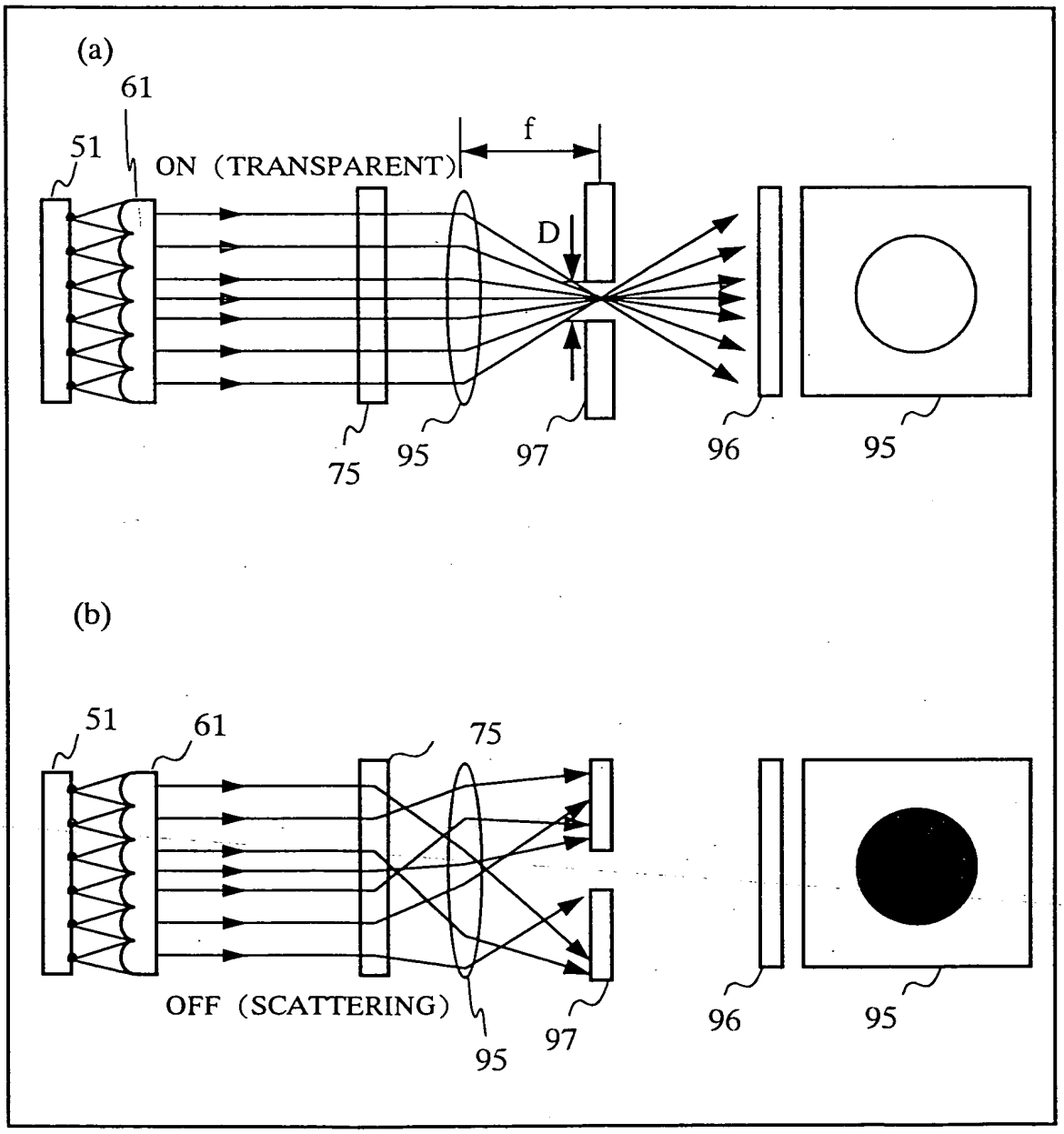
09/423817

Fig.13



09/423817

Fig.14



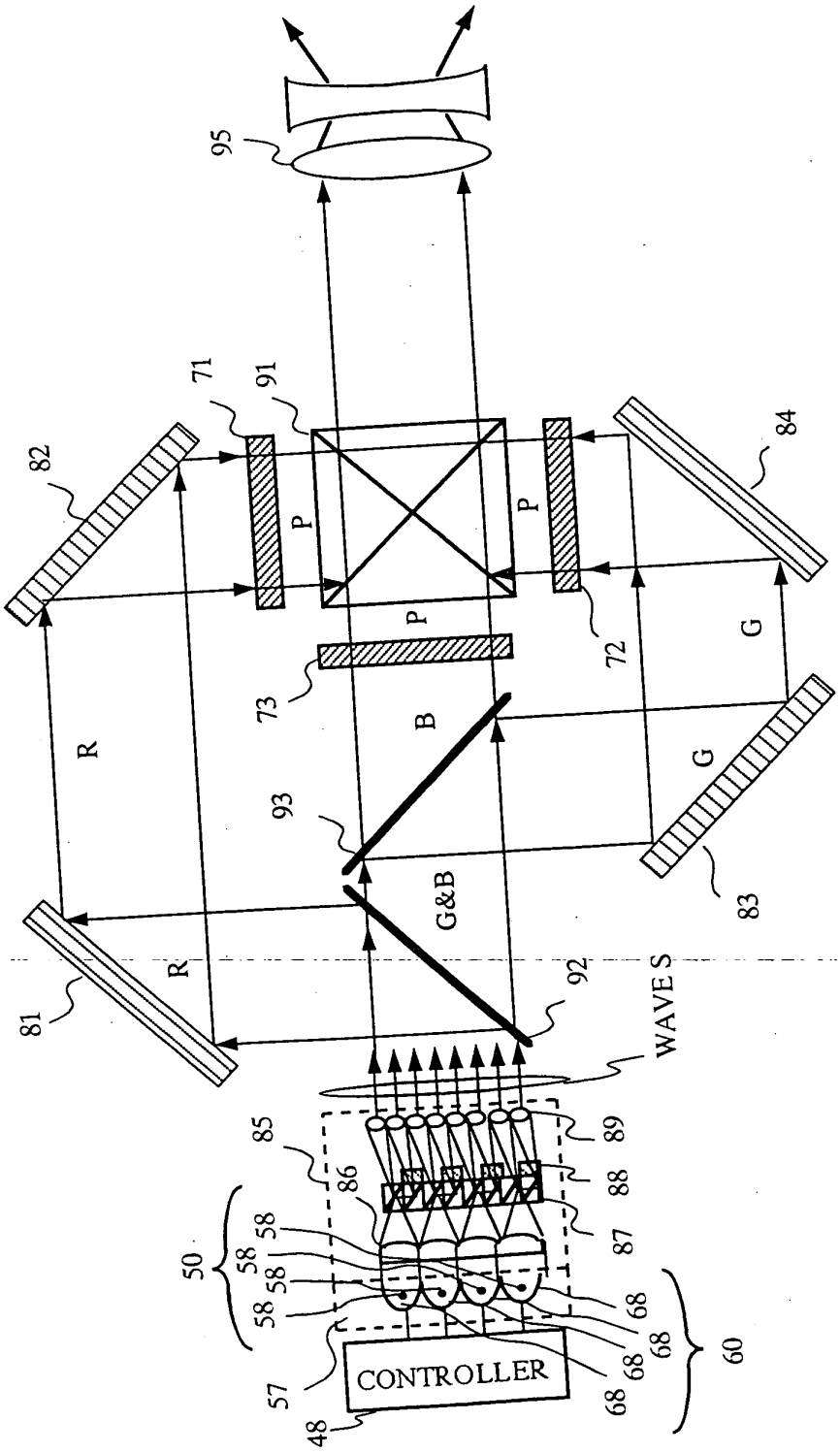

95
71
91
82
84
P
P
P
72
73
G
B
R
G
93
G&B
R
83
81
92
WAVES
85
89
86
88
87
58
58
58
58
50
68
68
68
68
68
60
57
CONTROLLER
48

Fig.15

Fig.16

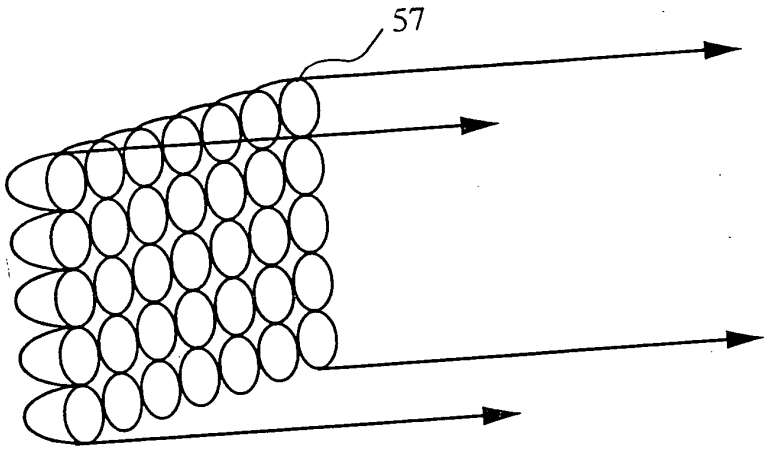


Fig.17

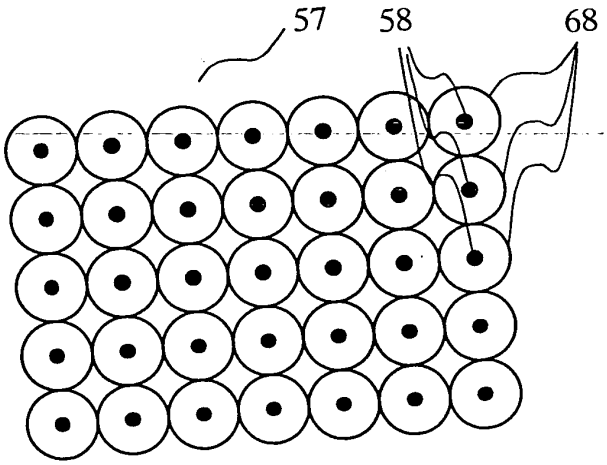
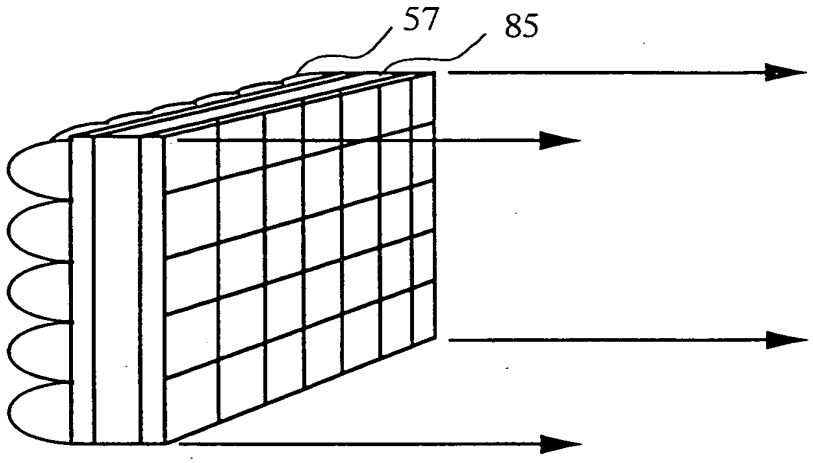


Fig.18



SUBSTITUTE SHEET (RULE 26)

Fig.19

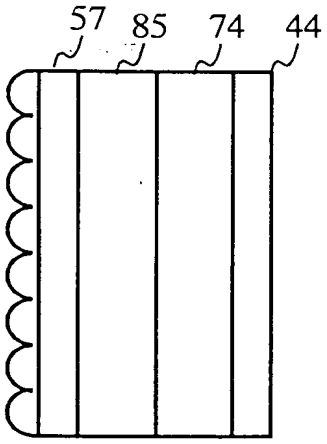
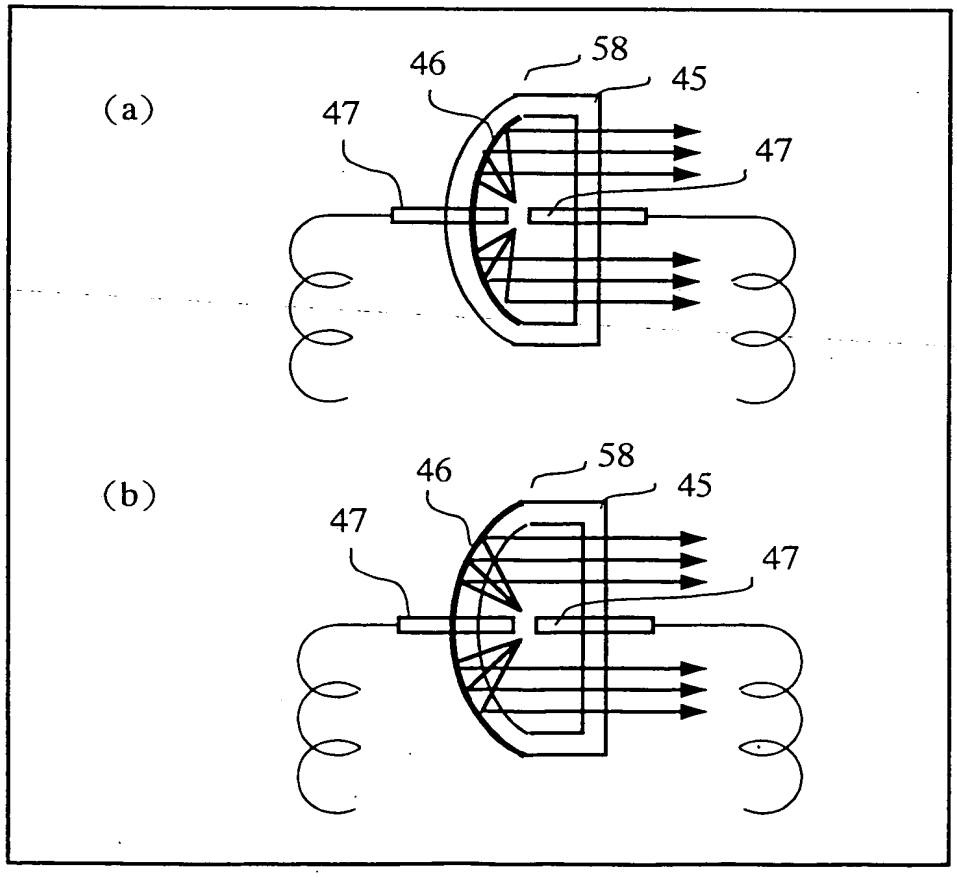


Fig.20



SUBSTITUTE SHEET (RULE 26)

Fig.21

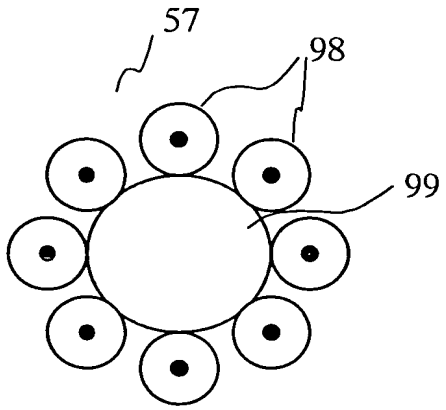


Fig.22

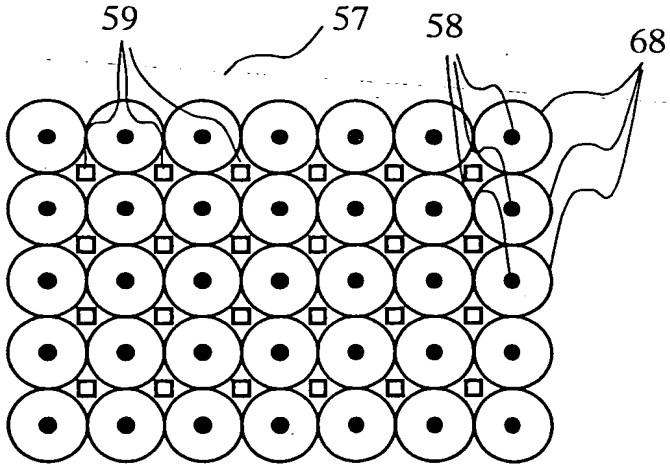


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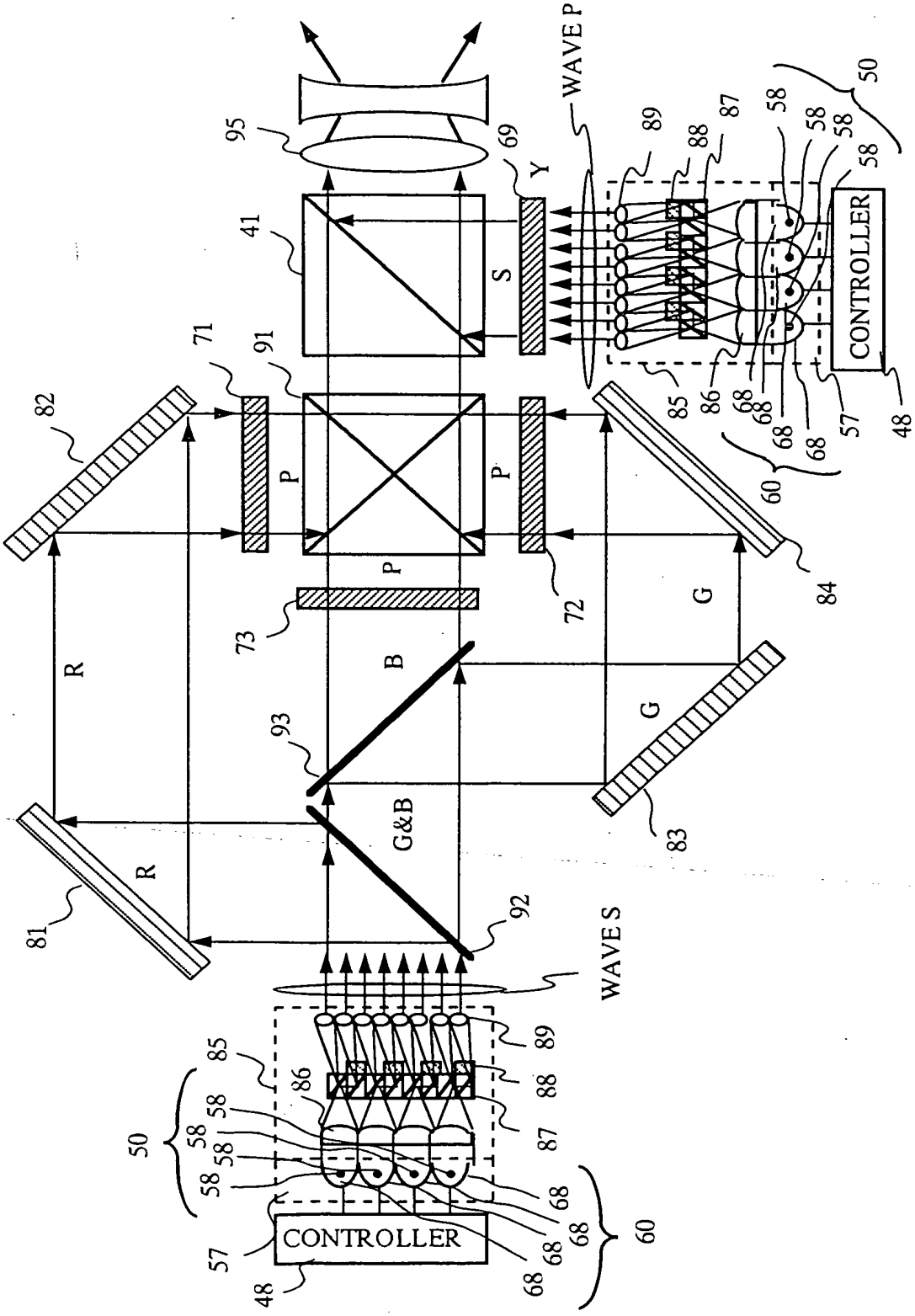
Fig.23



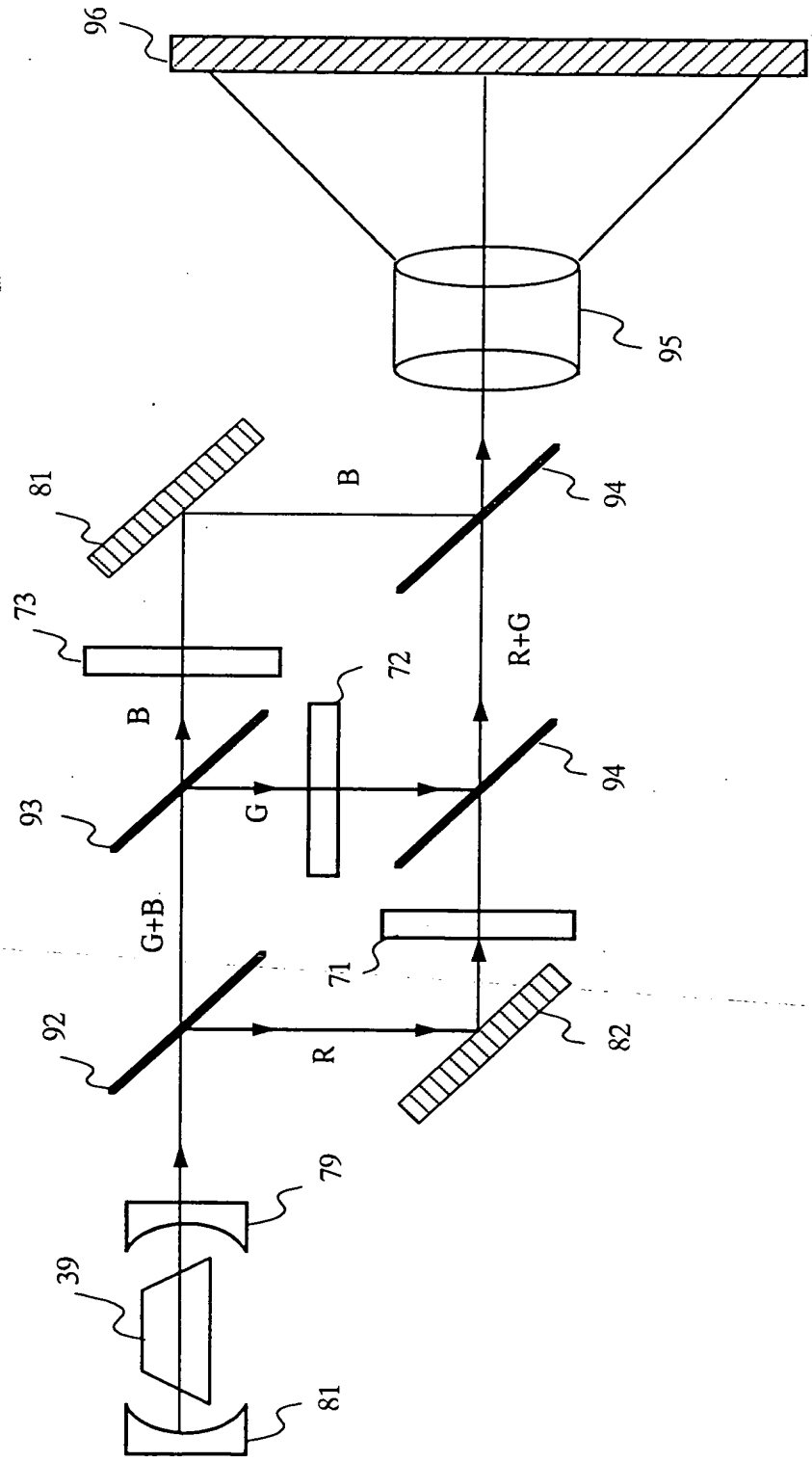


Fig.24

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Fig.25

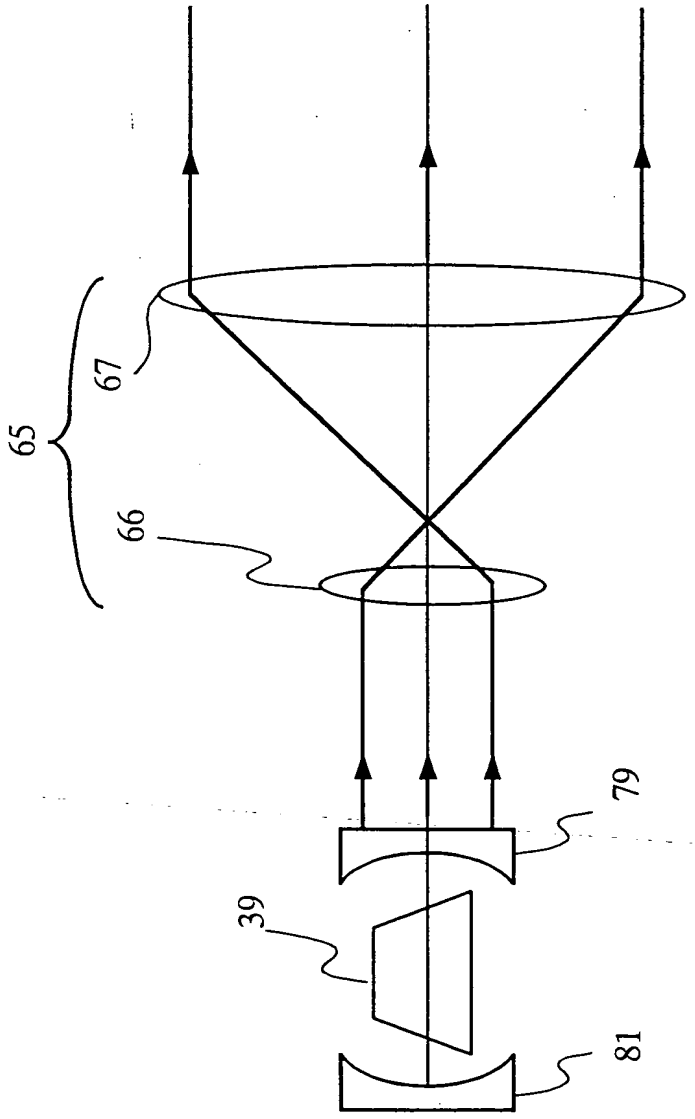


Fig.26

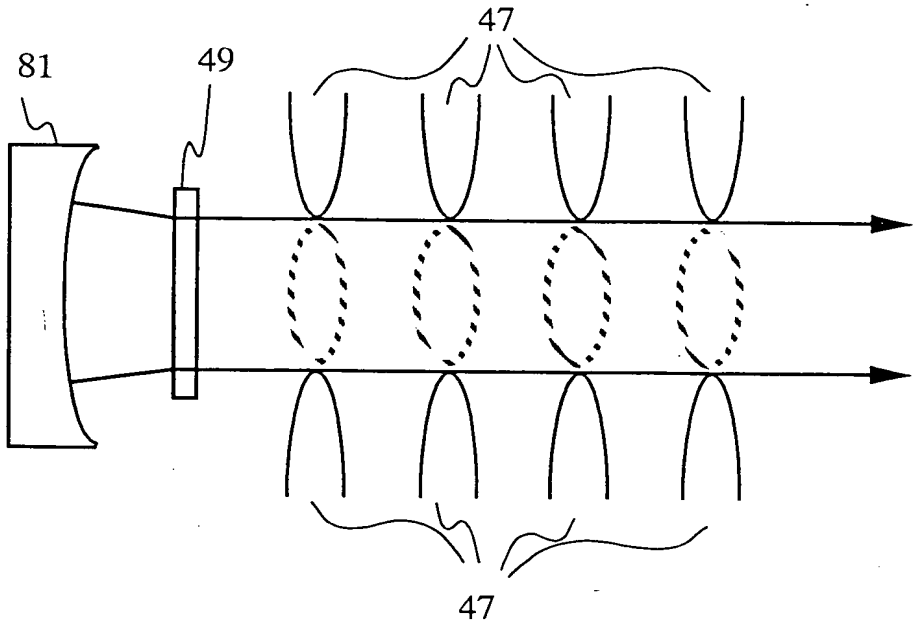
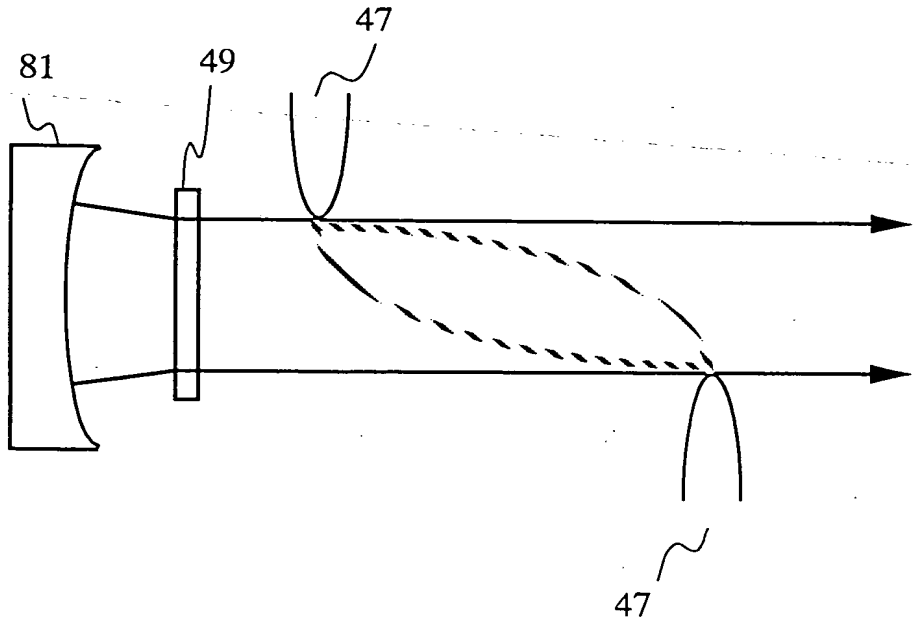


Fig.27



09423817 - 111599

Fig.28

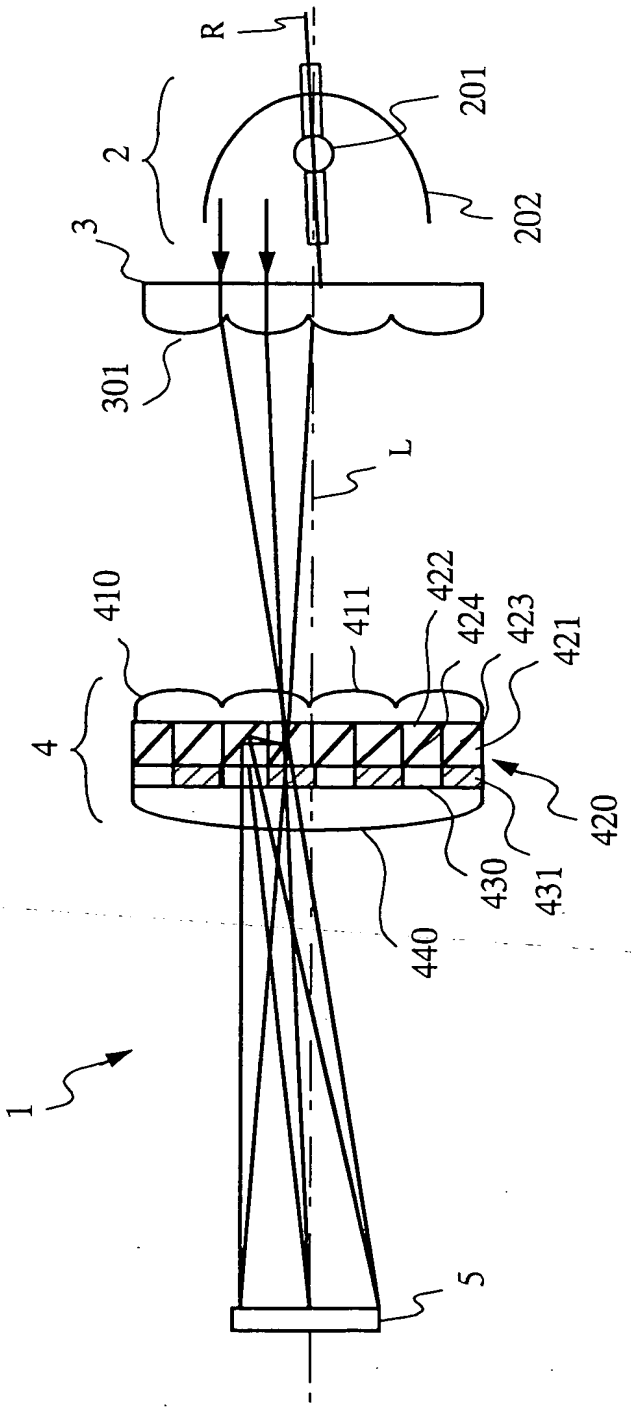
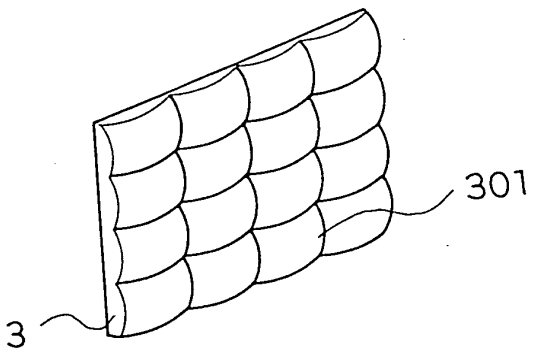


Fig.29



09423817 - 230599

Fig.30

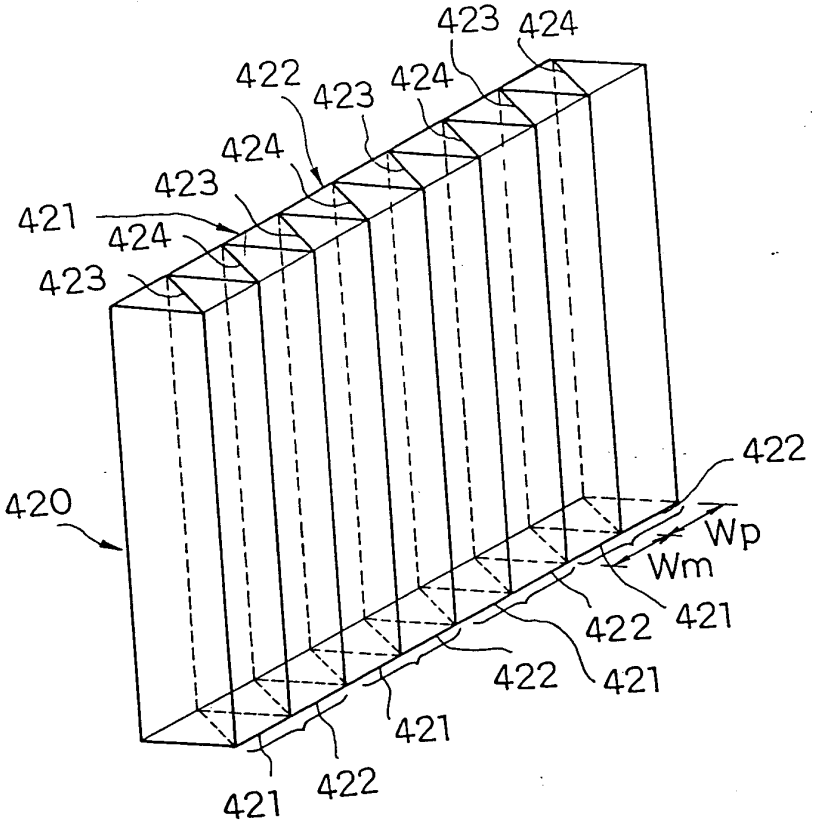

423
424
422
423
424
424
423
421
424
423
422
420
Wp
Wm
421
422
421
422
421
421
422

Fig.31

1
2
3
4
410
411
420
430
440
3400
3401
3402
3403
3404
3405
3406
3407
3408
3409
3410
3411
3413
3414
3415
3450
R
G
B

Fig.32

LAMP	METAL HALIDE	XENON	HALOGEN
LUMINOUS EFFICIENCY	80 lm/W	30 lm/W	30 lm/W
COLOR TEMPERATURE	9000 K	6500 K	3000 K
LIFE TIME	2000 H	500 H	100 H

Fig.33

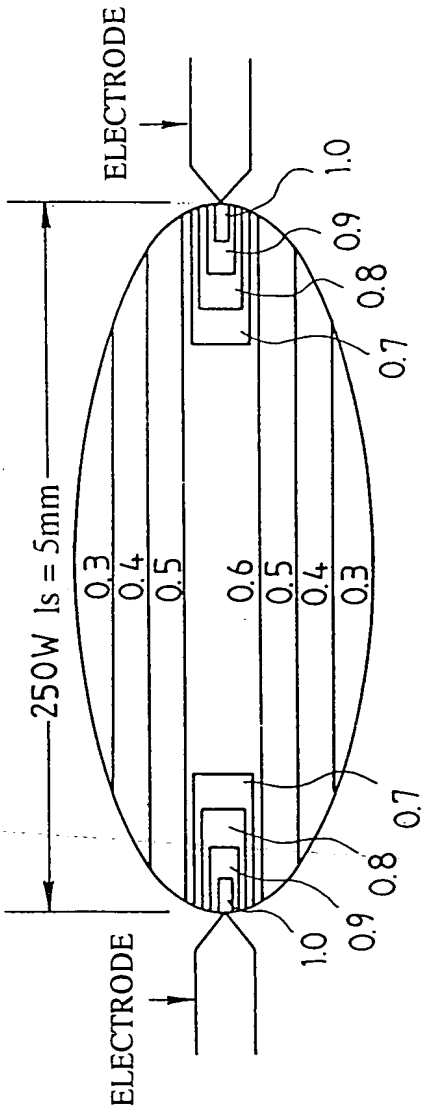
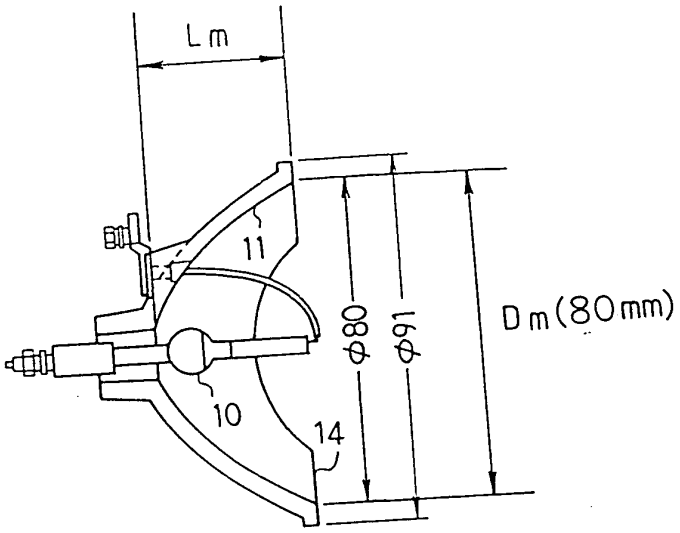
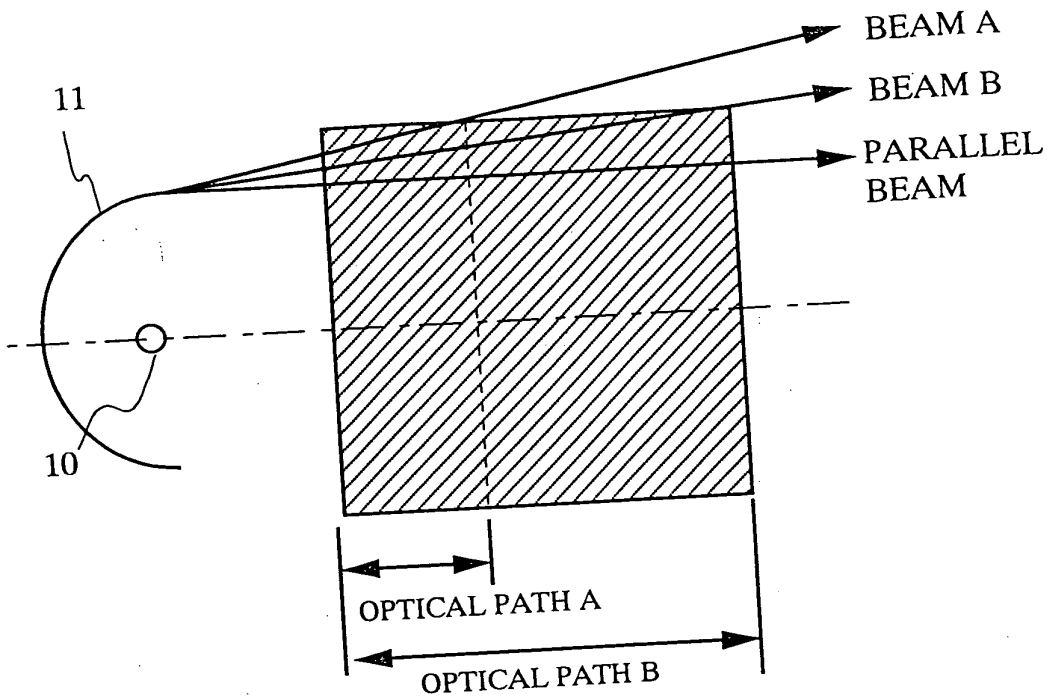

ELECTRODE
1.0
0.9
0.8
0.7
250W ls = 5mm
0.3
0.4
0.5
0.6
0.5
0.4
0.3
0.7
0.8
0.9
1.0
ELECTRODE

Fig.34



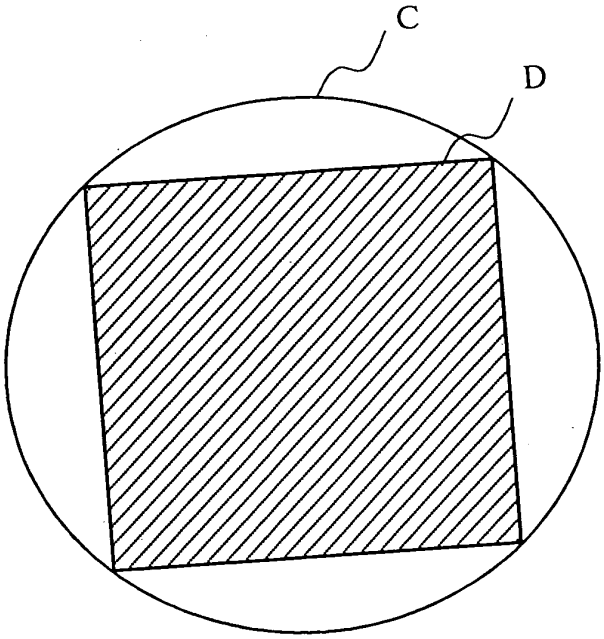
09423817 - 1999.05.06

Fig.35



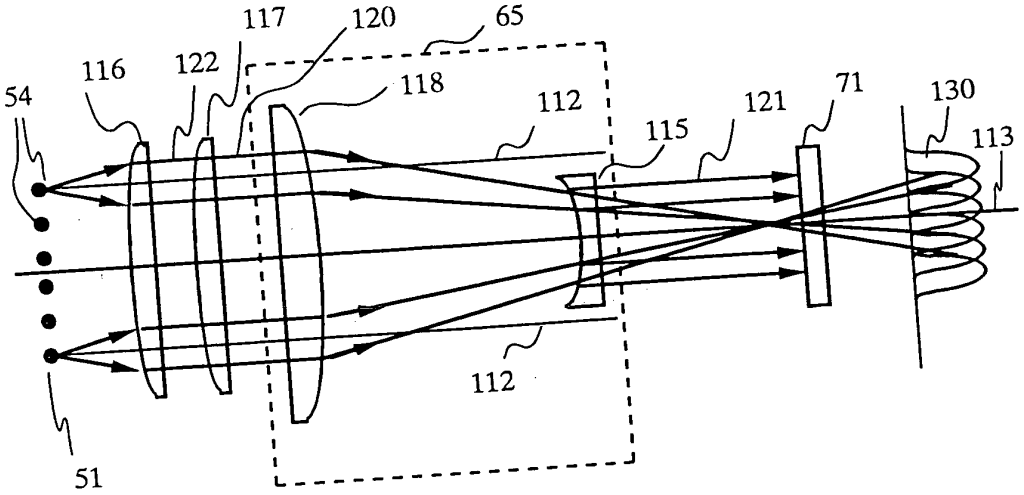
SUBSTITUTE SHEET (RULE 26)

Fig.36



SUBSTITUTE SHEET (RULE 26)

Fig.37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65
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112
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121
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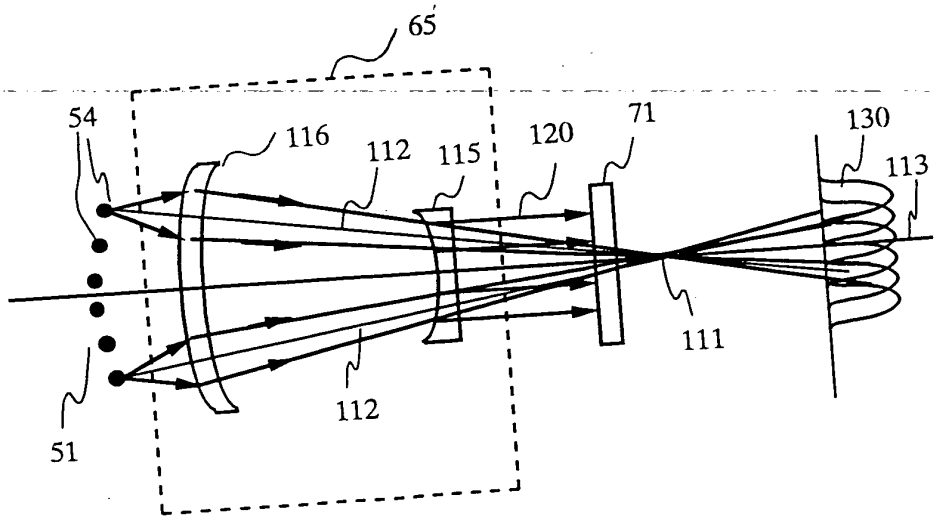
54
112
51

Fig.38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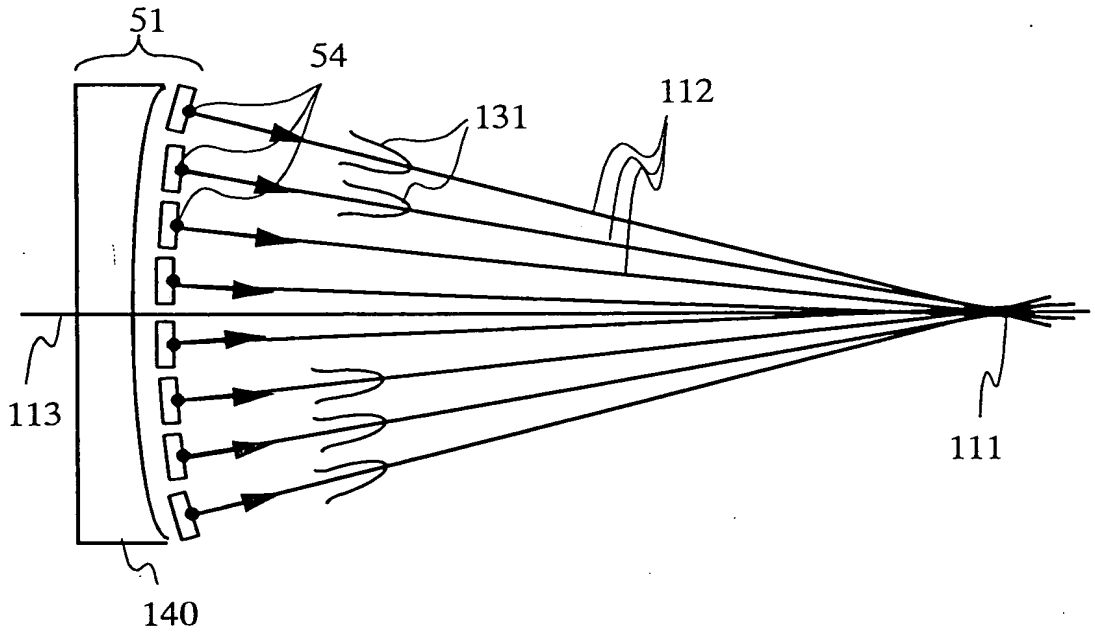
54
116
112
115
120
71
130
113
111
112
51

Fig.39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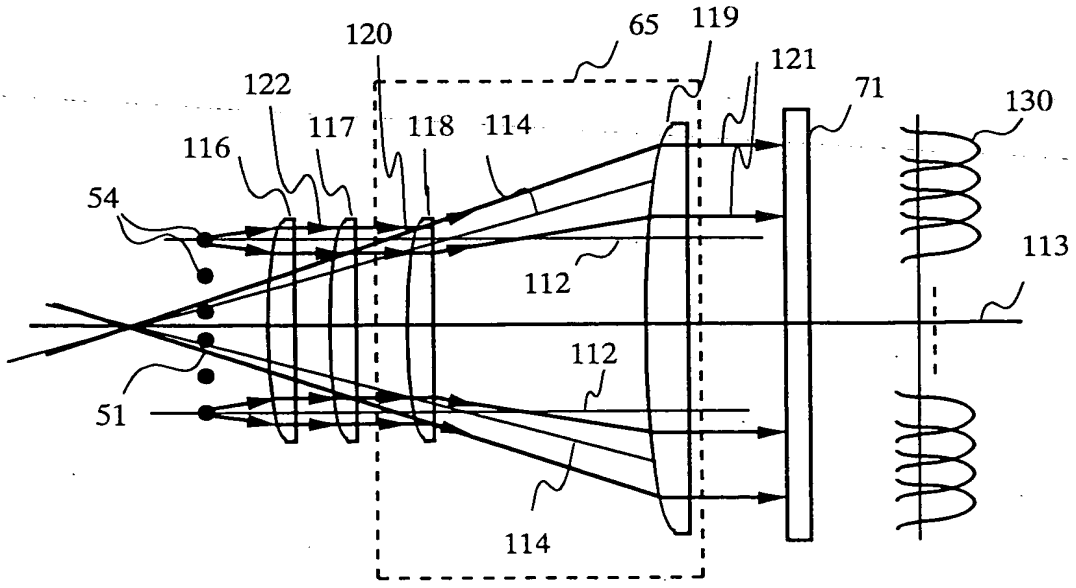
54
131
112
113
111
140

Fig.40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71
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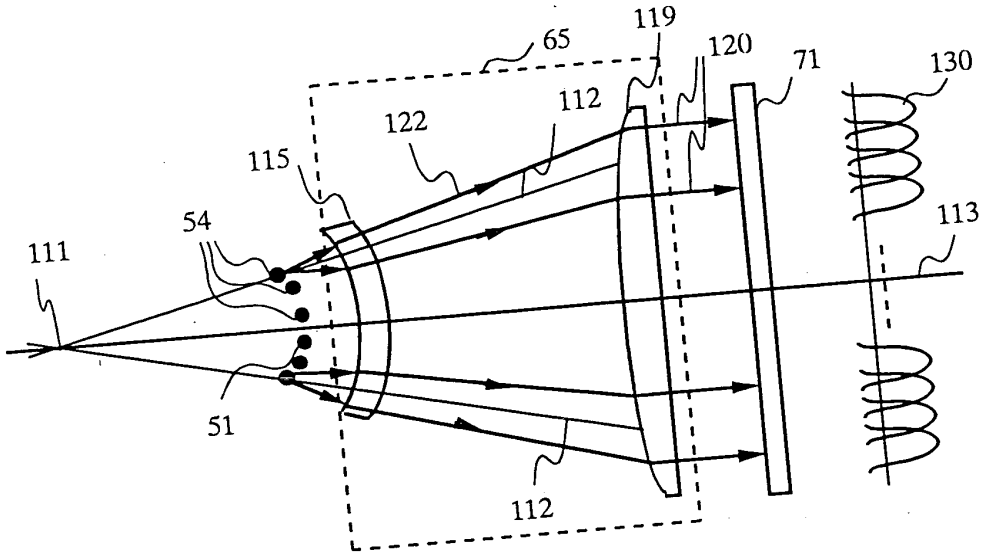
112
113
112
51
114

Fig.41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122
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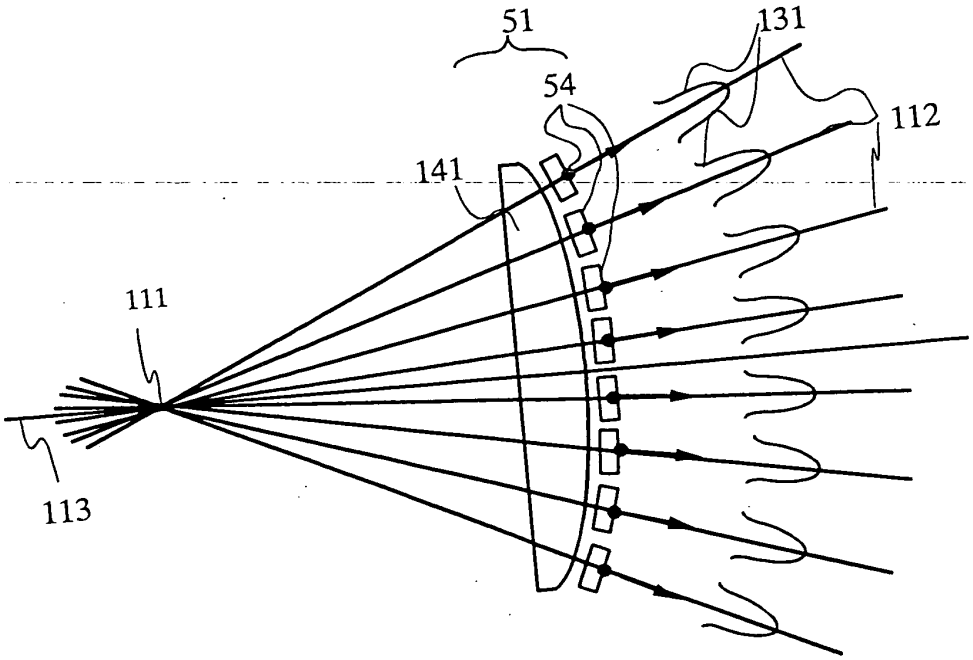
111
113
51
112

Fig.42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131
54
112
141
111
113

BEST AVAILABLE COPY

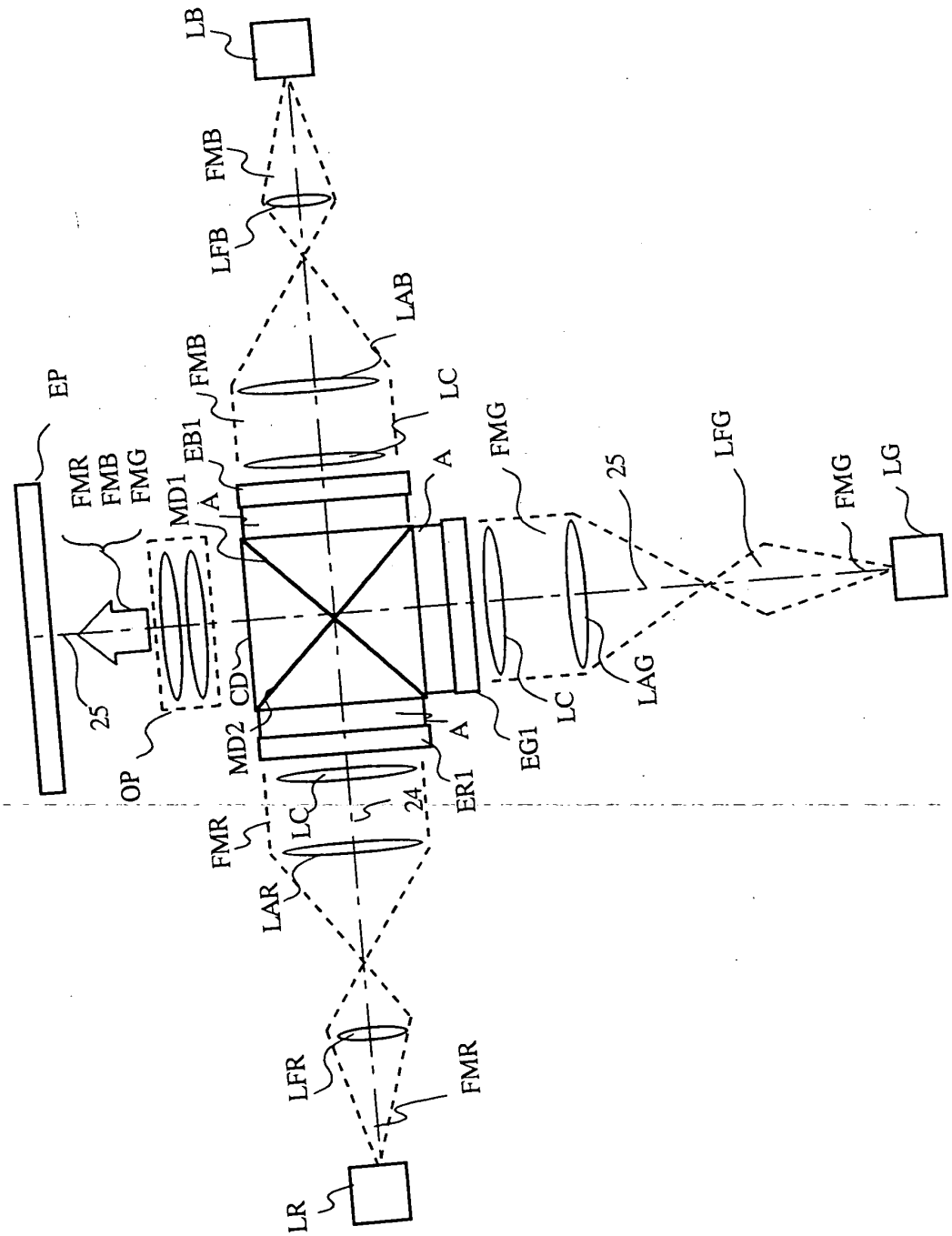


Fig.43

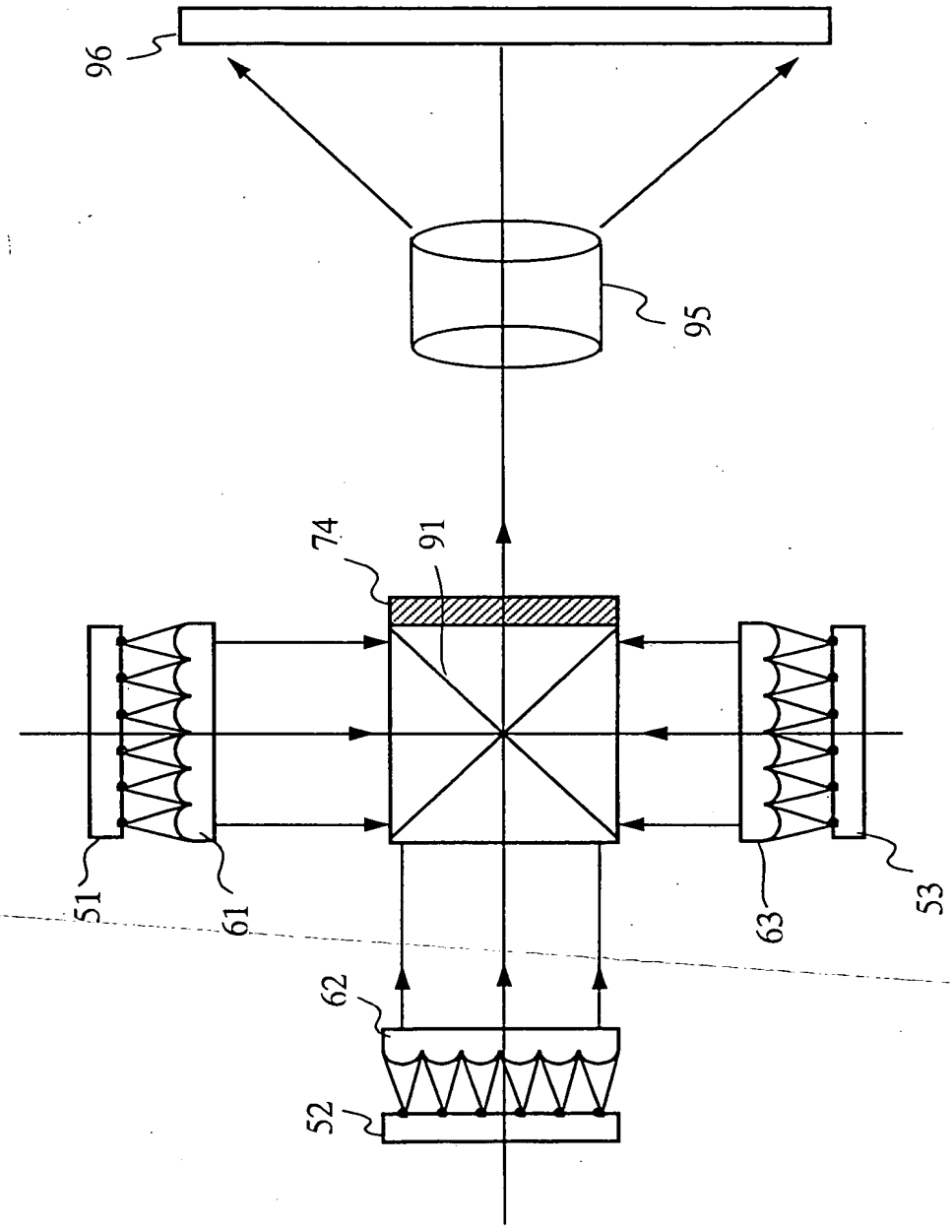


Fig.44

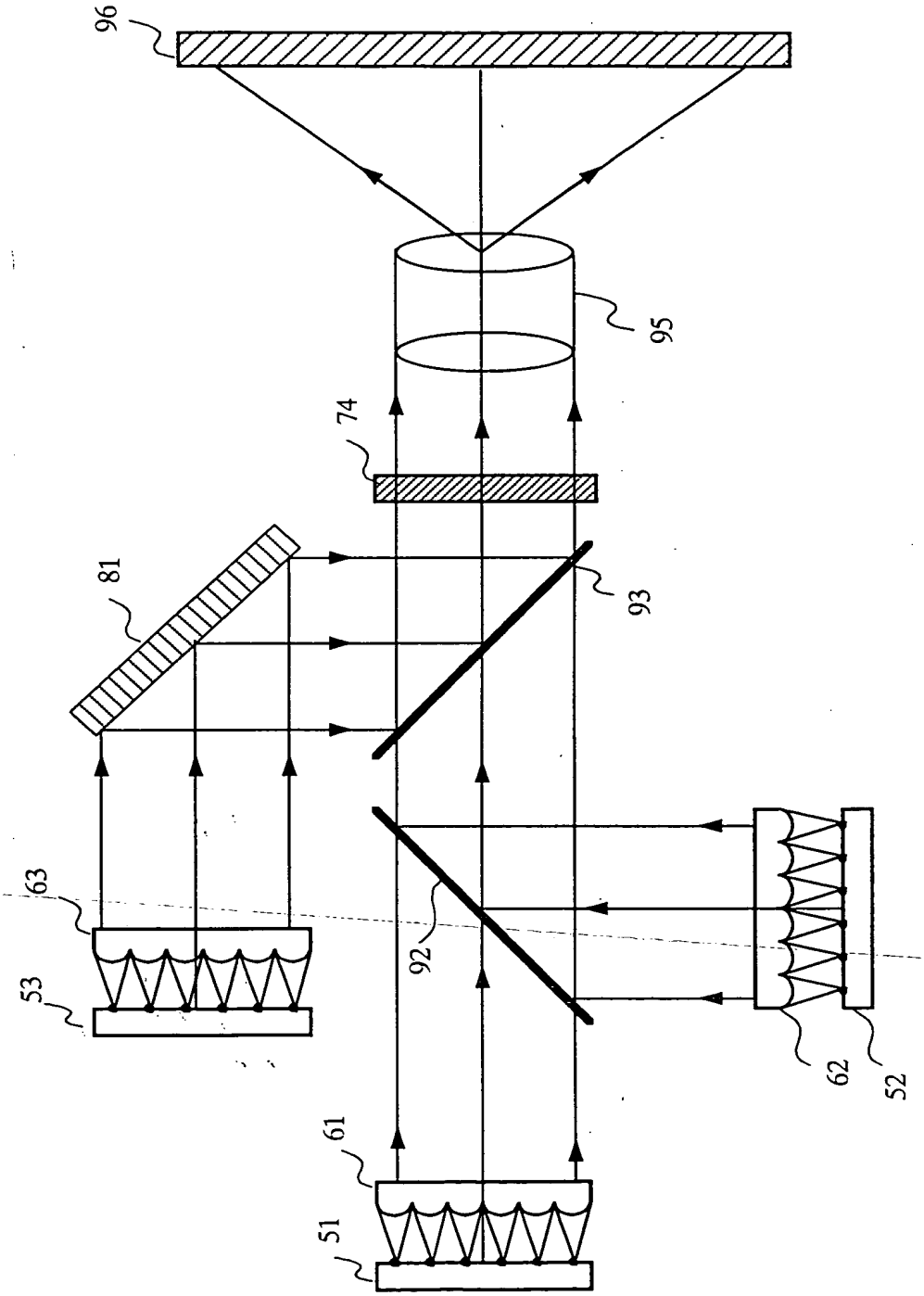


Fig.45

SUBSTITUTE SHEET (RULE 26)

Fig.46

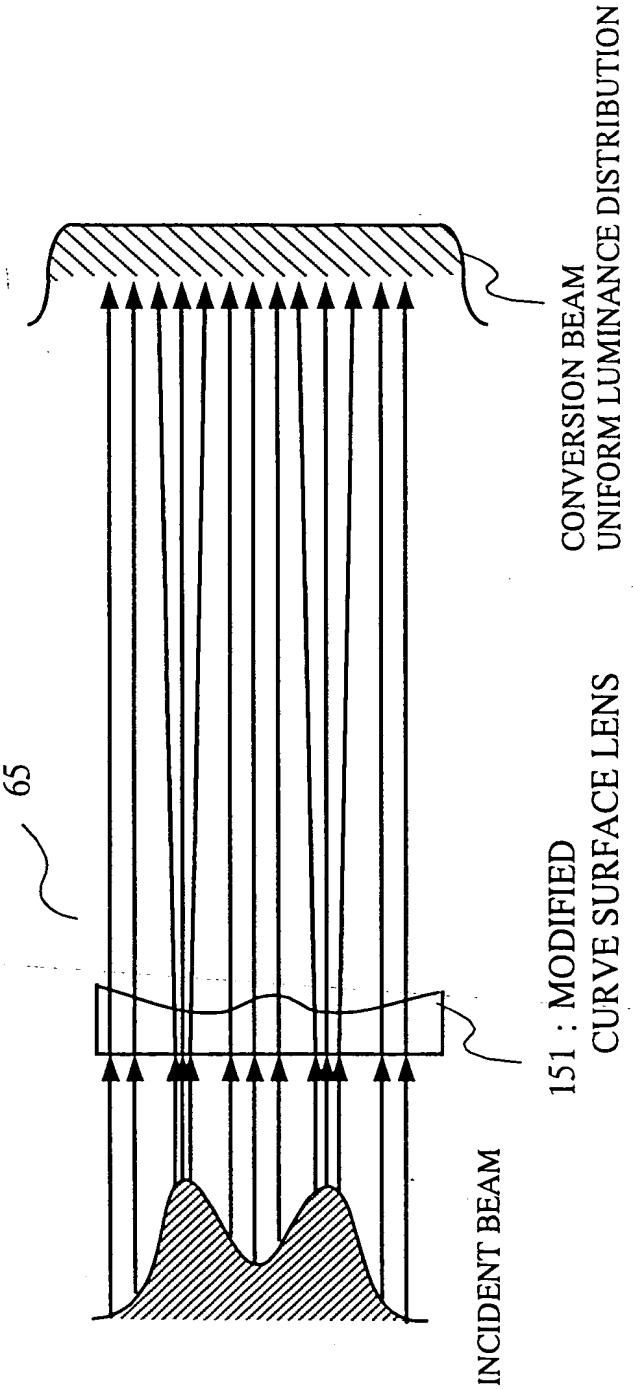


Fig.47

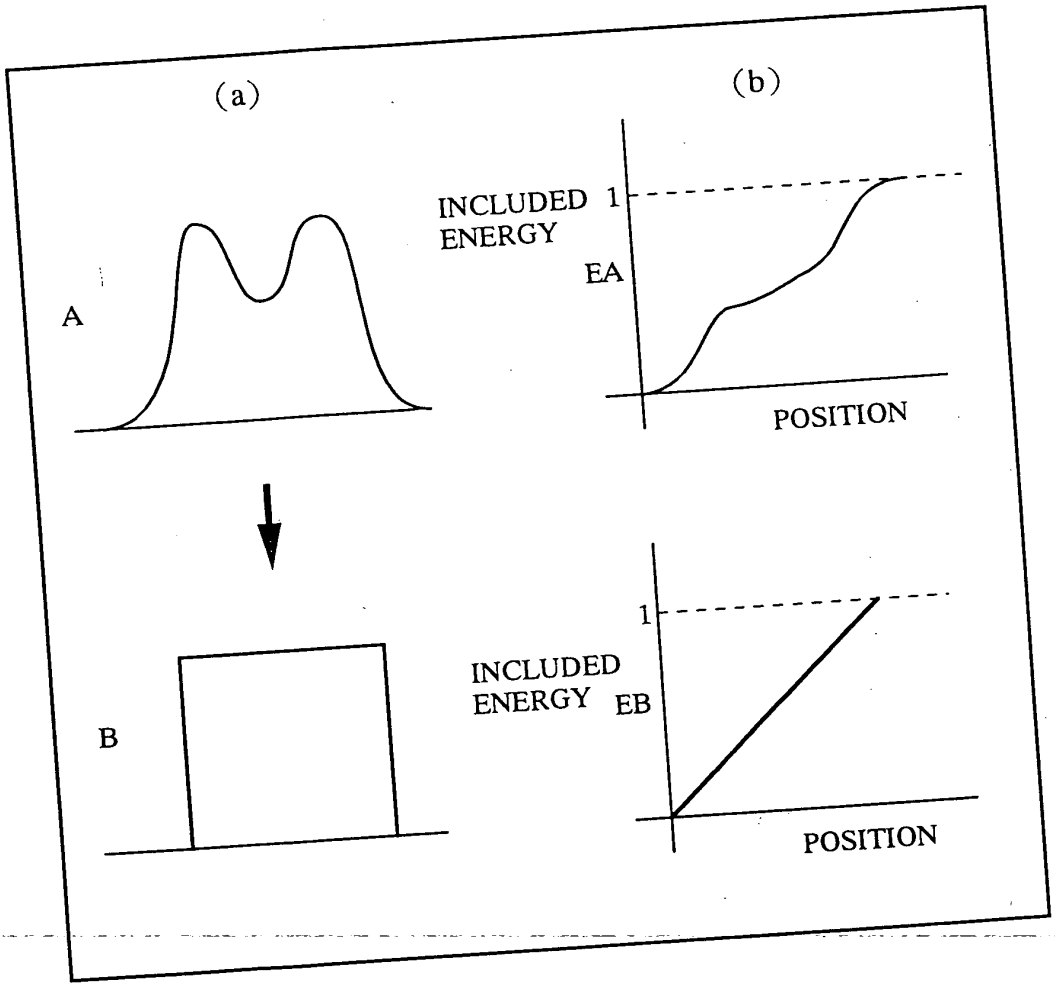

(a)
(b)
A
INCLUDED ENERGY
1
EA
POSITION
B
INCLUDED ENERGY
1
EB
POSITION

Fig.48

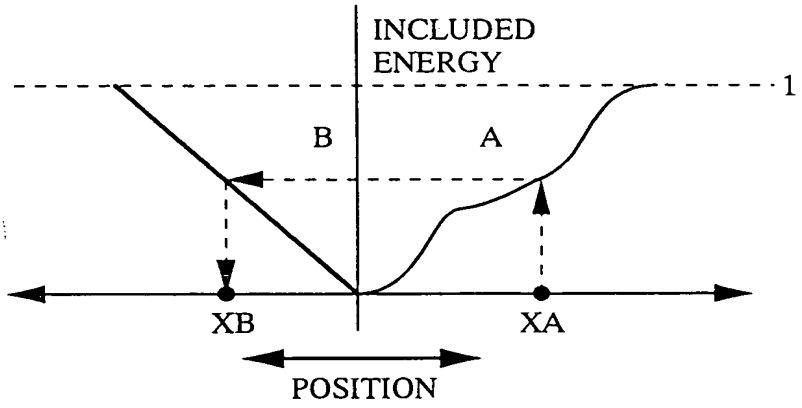
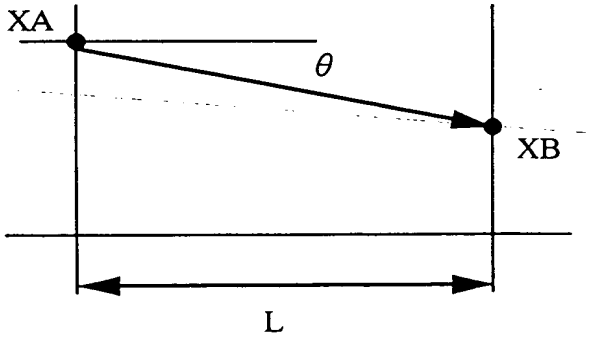


Fig.49



$$\tan\theta = \frac{X_A - X_B}{L} = \frac{X_A - T(X_A)}{L} = \theta\,(X_A, L)$$

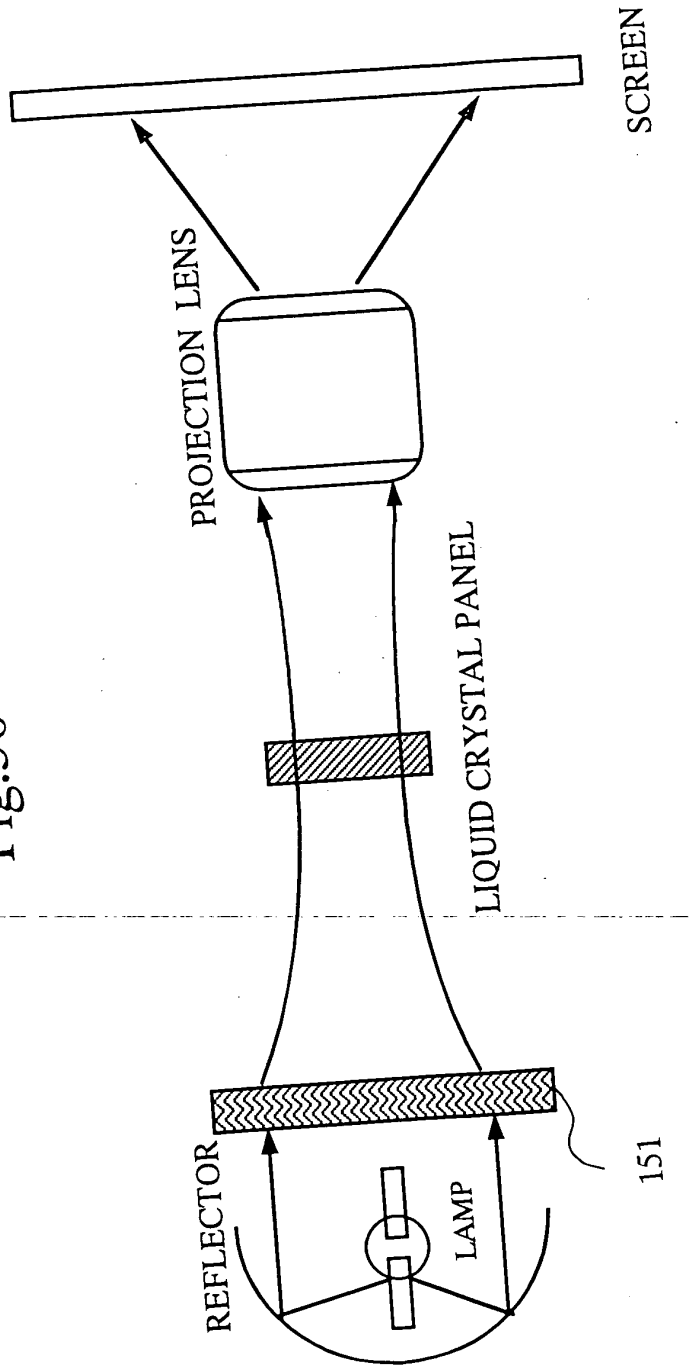
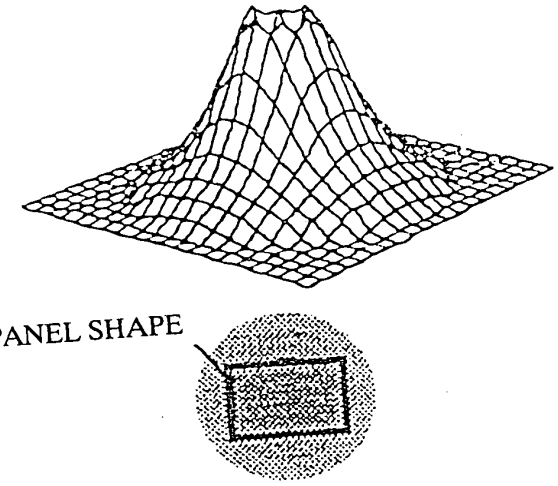


Fig.50

SUBSTITUTE SHEET (RULE 26)

Fig.51



SUBSTITUTE SHEET (RULE 26)

Fig.52

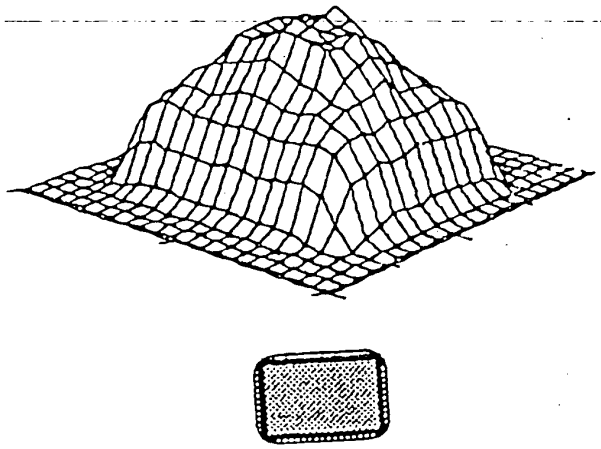


Fig.53

LAMP 150W、USING 1.3" COLOR PANEL	REGULAR LENS	MODIFIED CURVE SURFACE LENS
TOTAL LUMINOUS FLUX AMOUNT [lm]	121	261
CENTER ILLUMINANCE[Lux]	410	731
CIRCUMFERENTIAL ILLUMINANCE [Lux]	131	438
ILLUMINANCE RATIO OF CENTER TO CIRCUMFERENCE [%] (UNIFORMITY)	32	60

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Fig.54

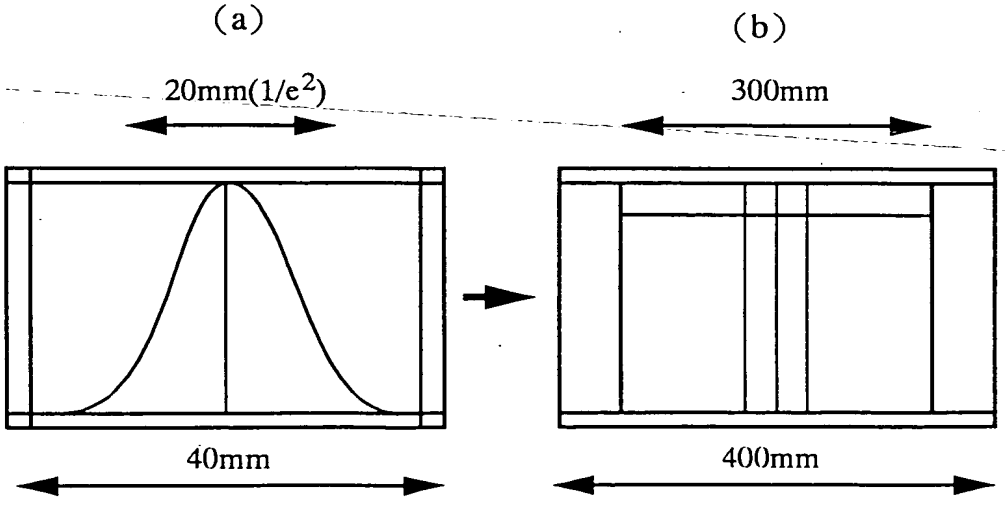

Fig.55

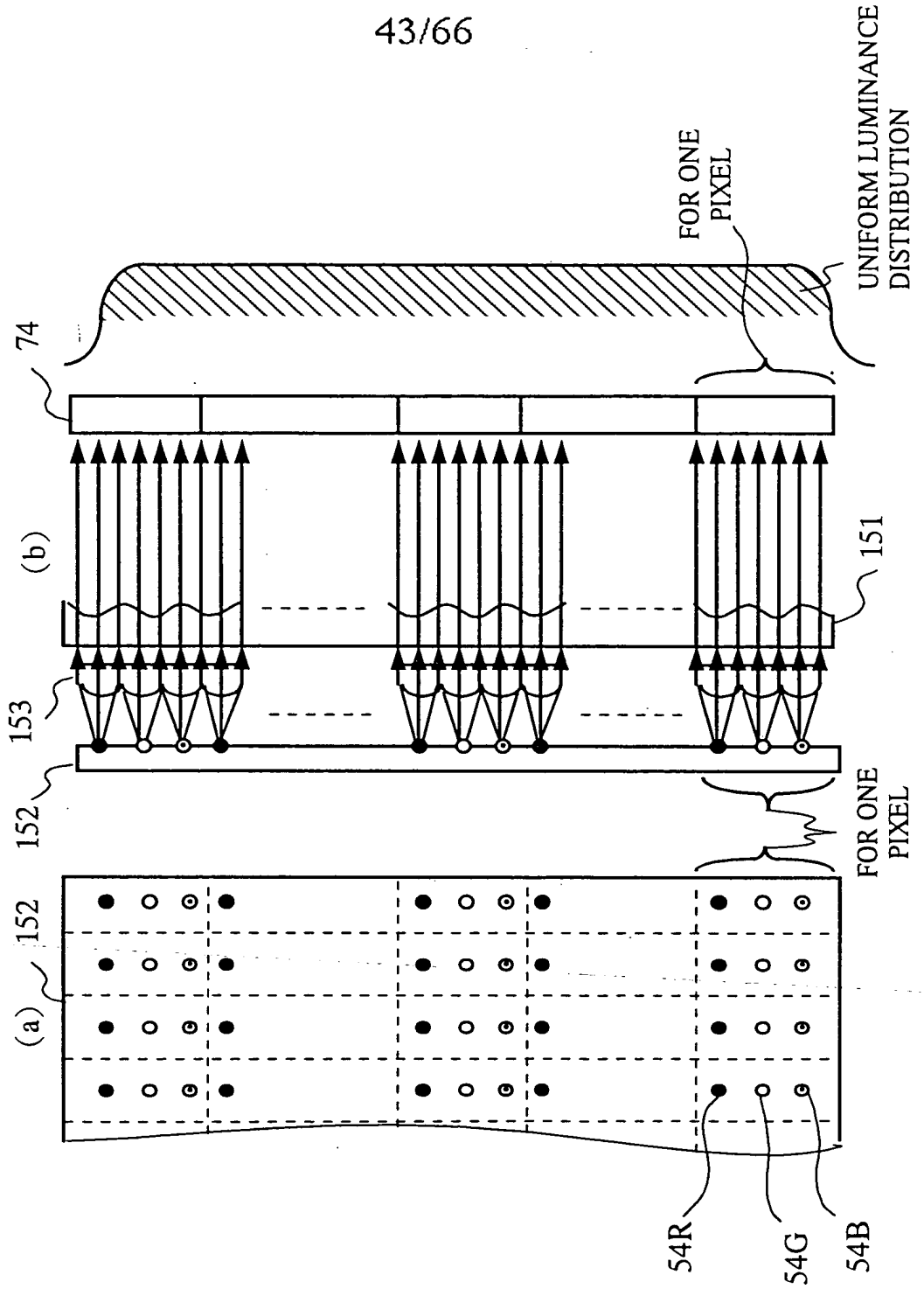
74
(b)
151
153
152
152
(a)
FOR ONE PIXEL
UNIFORM LUMINANCE DISTRIBUTION
FOR ONE PIXEL
54R
54G
54B

Fig.56

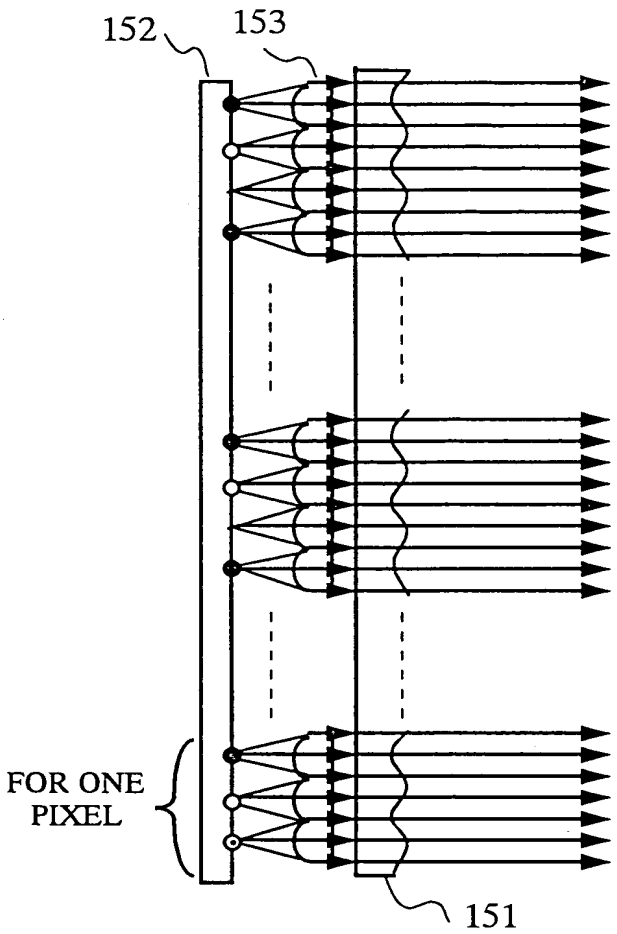

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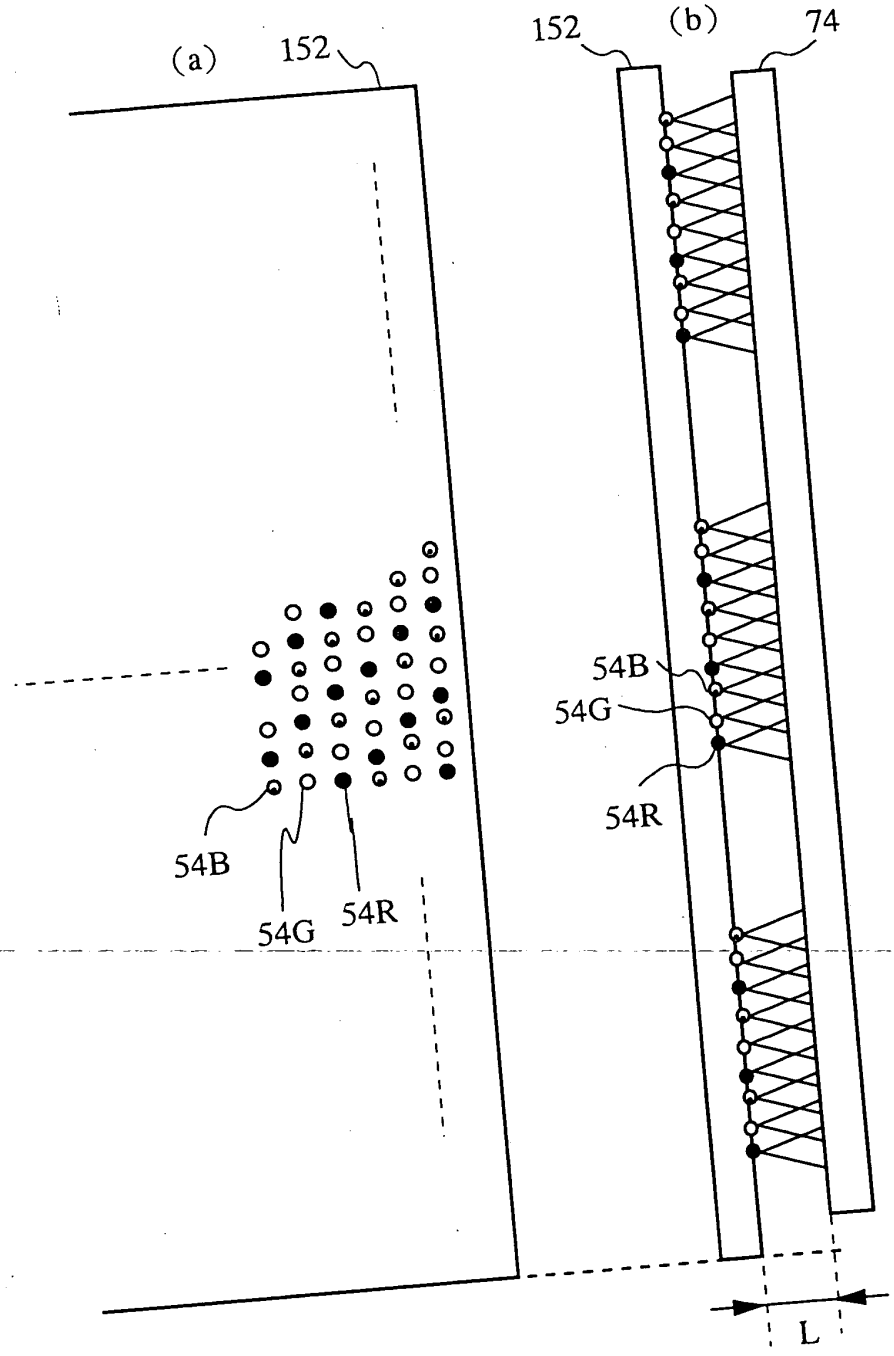
Fig.57



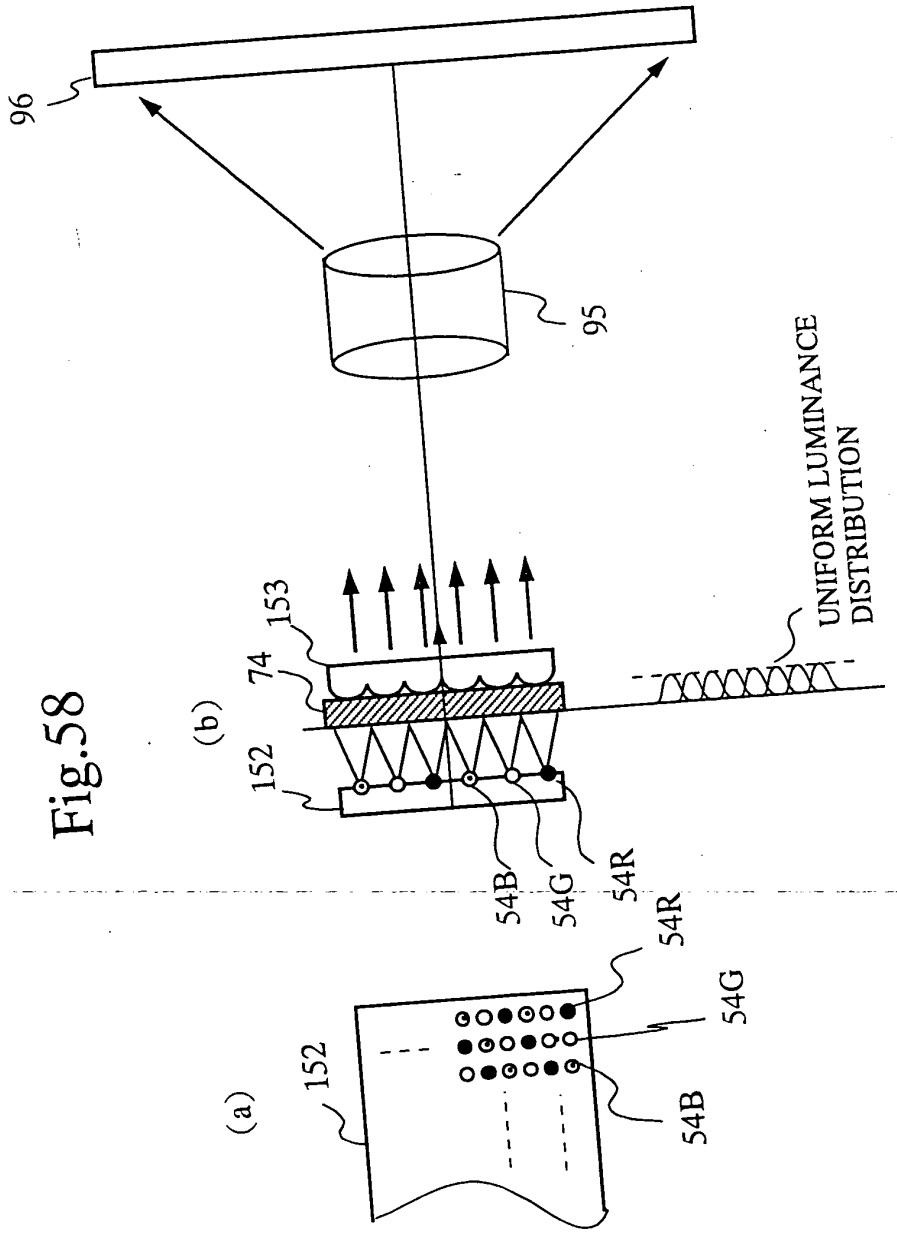

96
95
UNIFORM LUMINANCE DISTRIBUTION
153
74
152
(b)
54B
54G
54R
54R
54G
54B
152
(a)

Fig.58

Fig.59

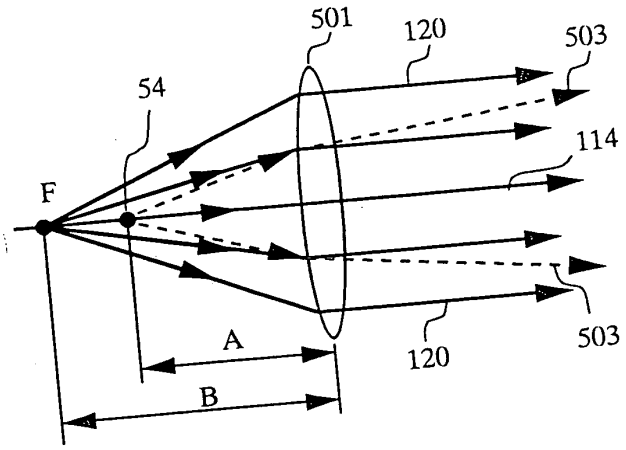

501
120
503
54
114
F
A
120
503
B

Fig.60

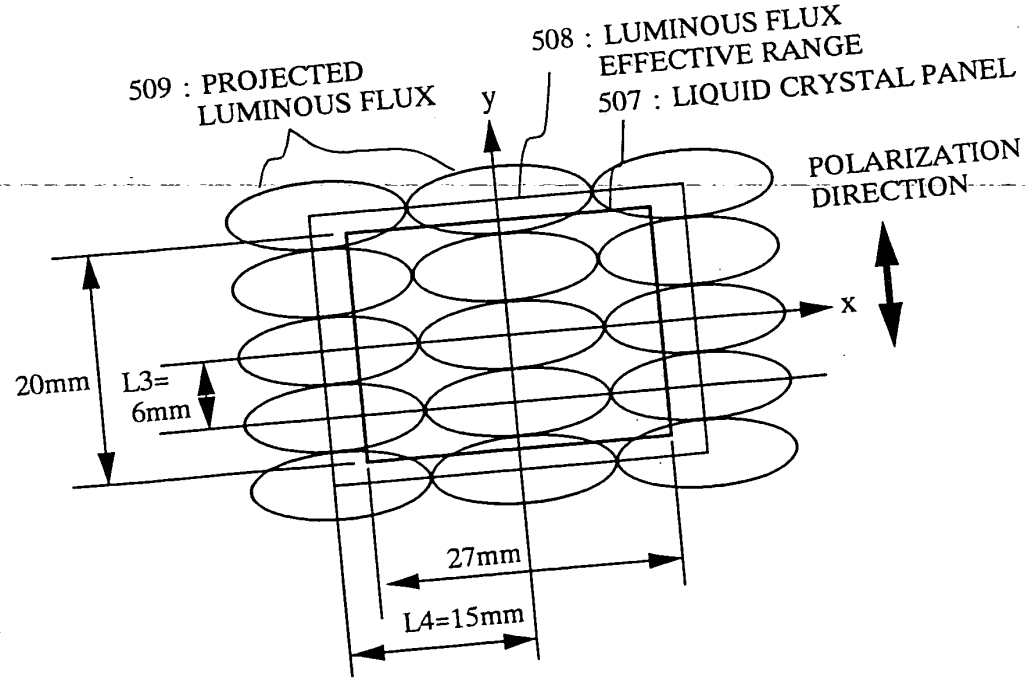

509 : PROJECTED LUMINOUS FLUX
y
508 : LUMINOUS FLUX EFFECTIVE RANGE
507 : LIQUID CRYSTAL PANEL
POLARIZATION DIRECTION
x
20mm
L3= 6mm
27mm
L4=15mm

Fig.61

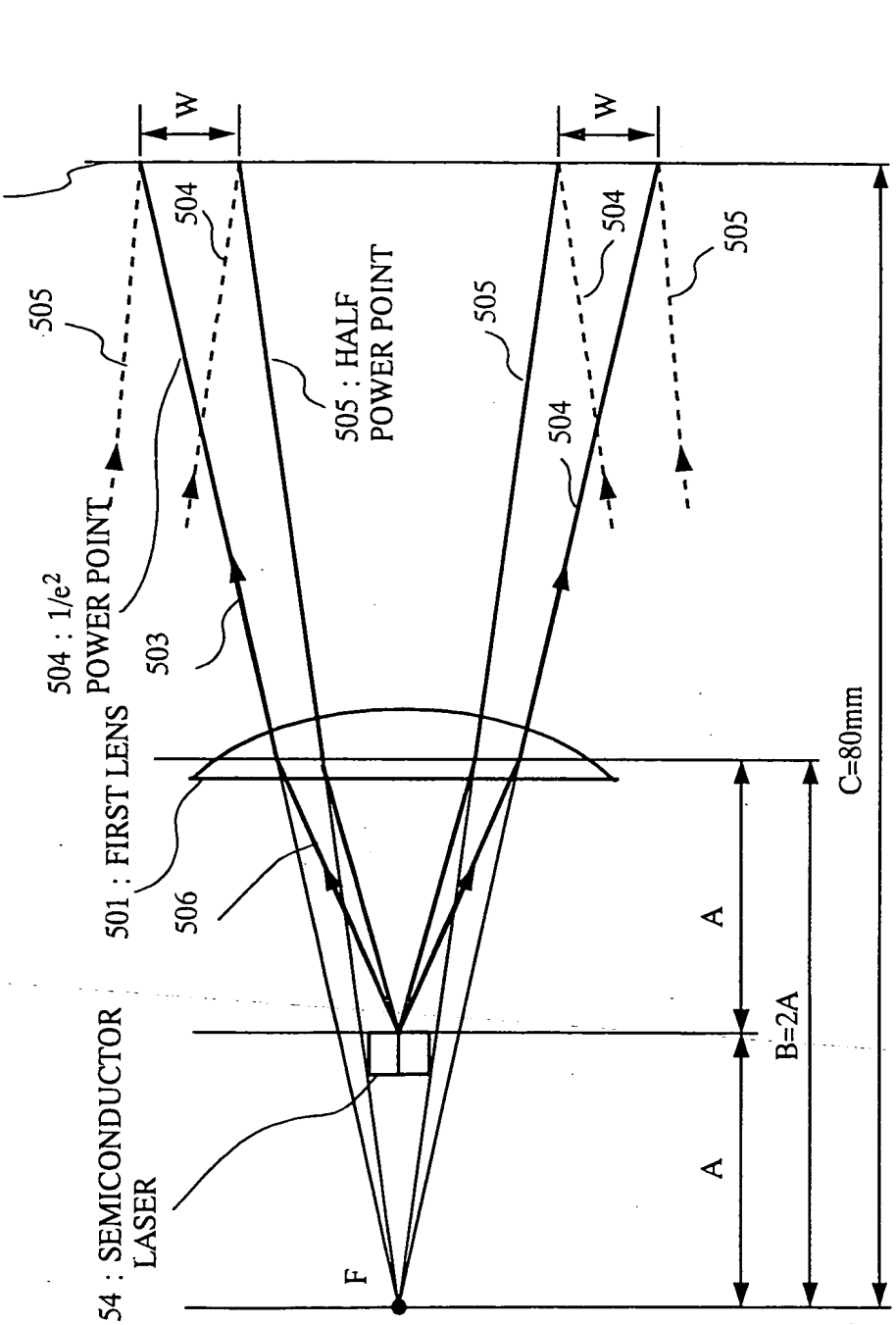
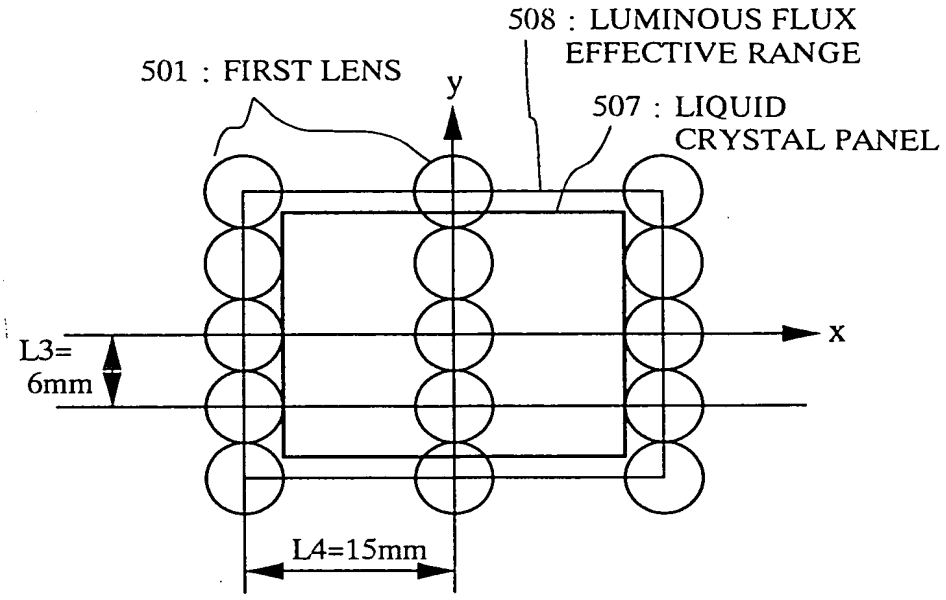

502 : SECOND LENS
W
W
504
504
504
505
505
505
505 : HALF
POWER POINT
504 : 1/e2
POWER POINT
503
501 : FIRST LENS
506
54 : SEMICONDUCTOR
LASER
F
A
A
B=2A
C=80mm

Fig.62

DESIGN EXAMPLE (UNIT : mm)

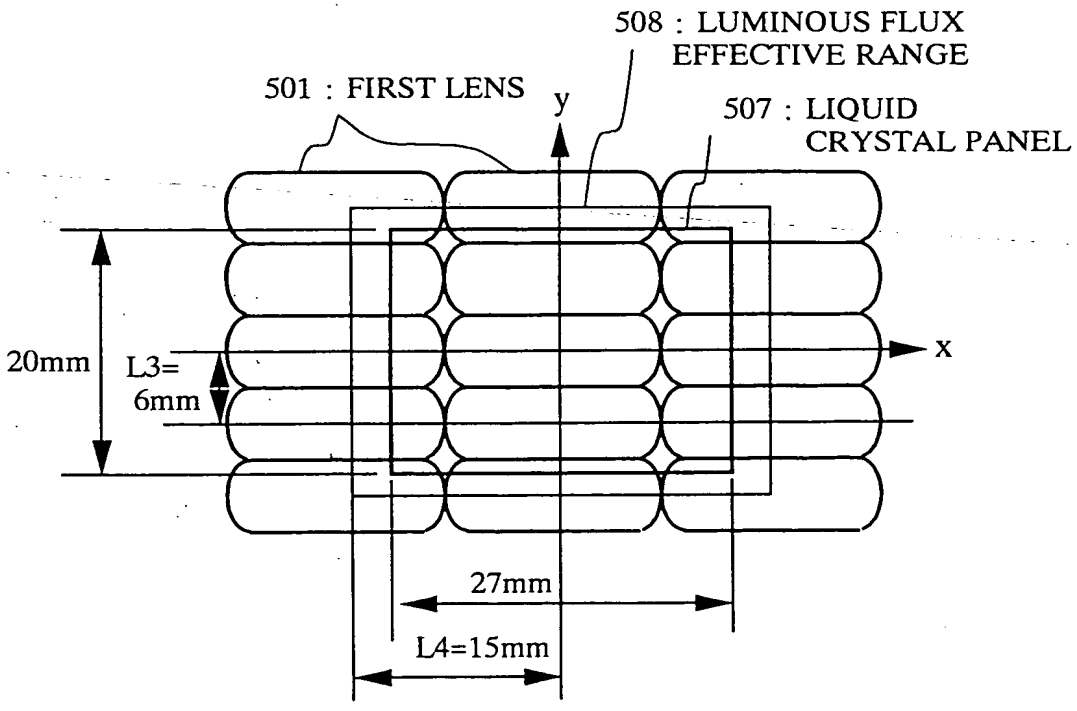
No.	A	B	FIRST LENS				SECOND LENS			
			NARROW ANGLE		WIDE ANGLE		NARROW ANGLE		WIDE ANGLE	
			HALF(L1)	$1/e^2$	HALF(L2)	$1/e^2$	HALF(L3)		HALF(L4)	
1	9	18	1.333	2.26	3.371	5.733	6		15	
2	23	46	3.41	5.79	8.8	15				

Fig.63



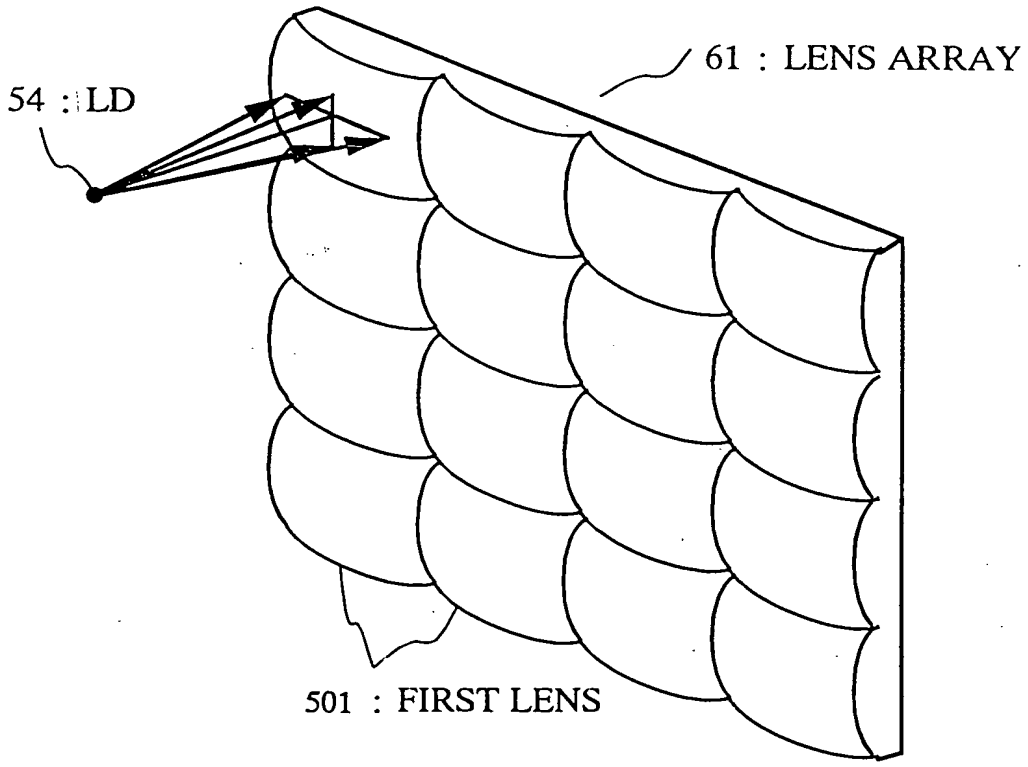
No.1DESIGN , FIRST LENS ALLOCATION(CIRCLE LENS)

Fig.64



No.2 DESIGN , FIRST LENS ALLOCATION
(A PART OF CIRCLE LENS BEING CUT)

Fig.65



SUBSTITUTE SHEET (RULE 26)

Fig.66

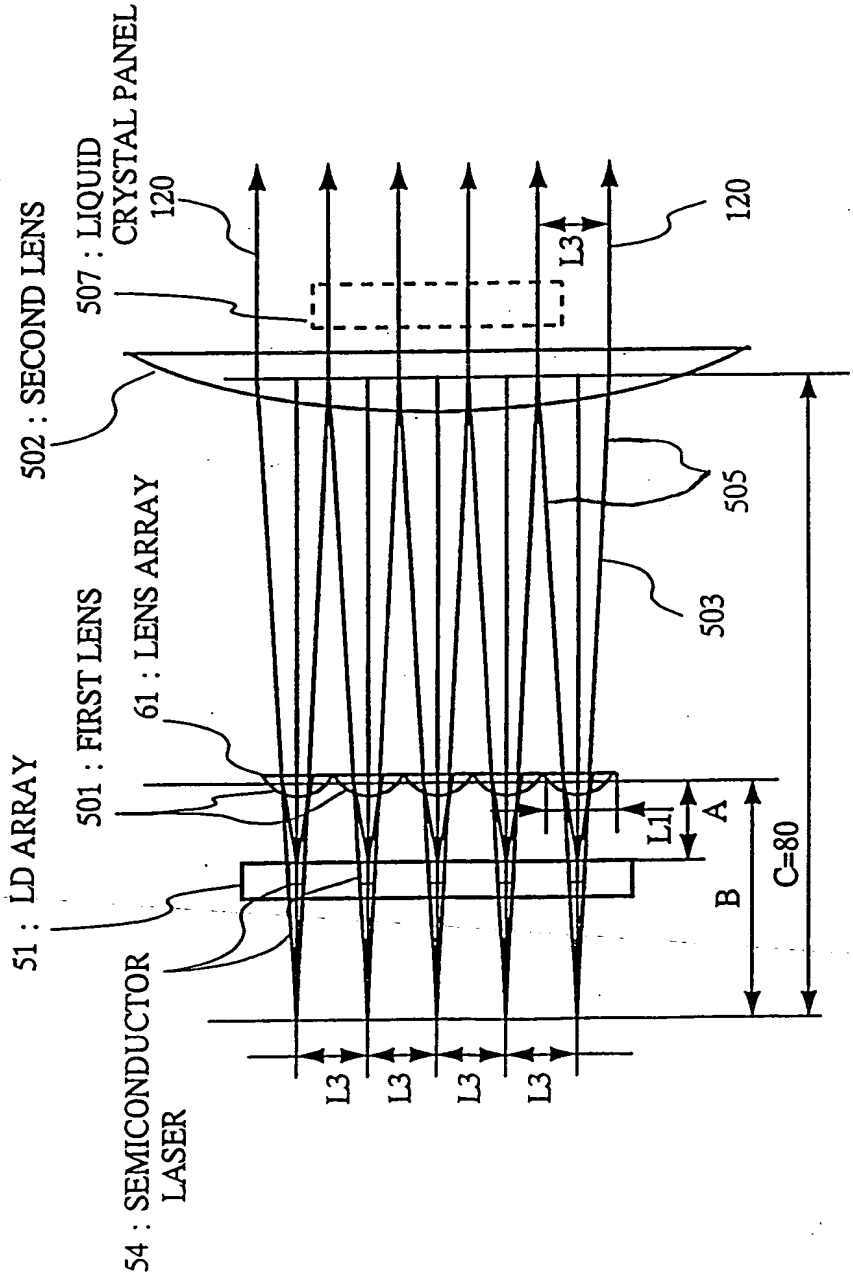

51 : LD ARRAY
54 : SEMICONDUCTOR LASER
501 : FIRST LENS
61 : LENS ARRAY
502 : SECOND LENS
507 : LIQUID CRYSTAL PANEL
120
120
505
503
L3
L3
L3
L3
L3
L1
A
B
C=80

Fig.67

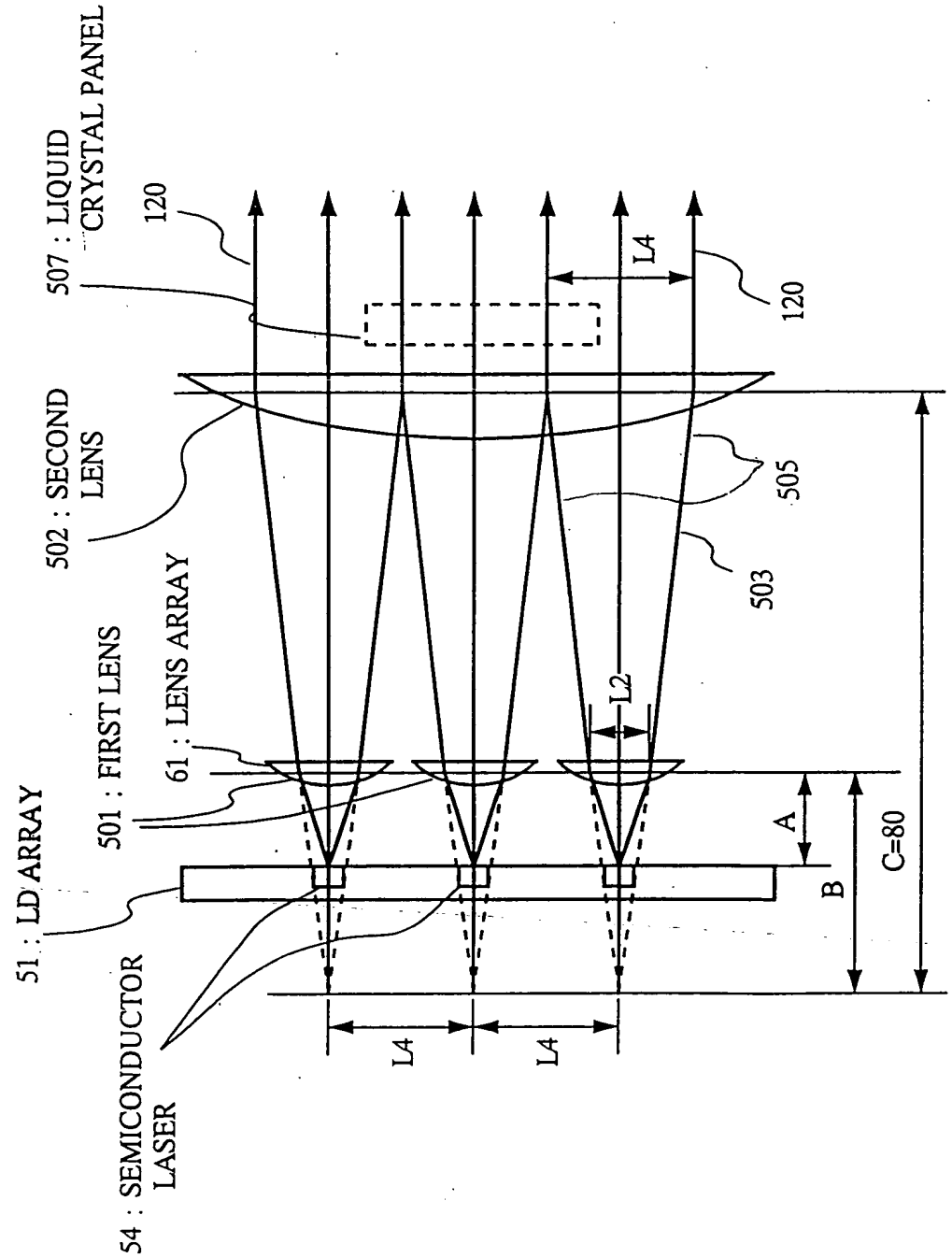

507 : LIQUID CRYSTAL PANEL
120
120
L4
502 : SECOND LENS
505
503
61 : LENS ARRAY
L2
501 : FIRST LENS
A
B
C=80
51 : LD ARRAY
54 : SEMICONDUCTOR LASER
L4
L4

Fig.68

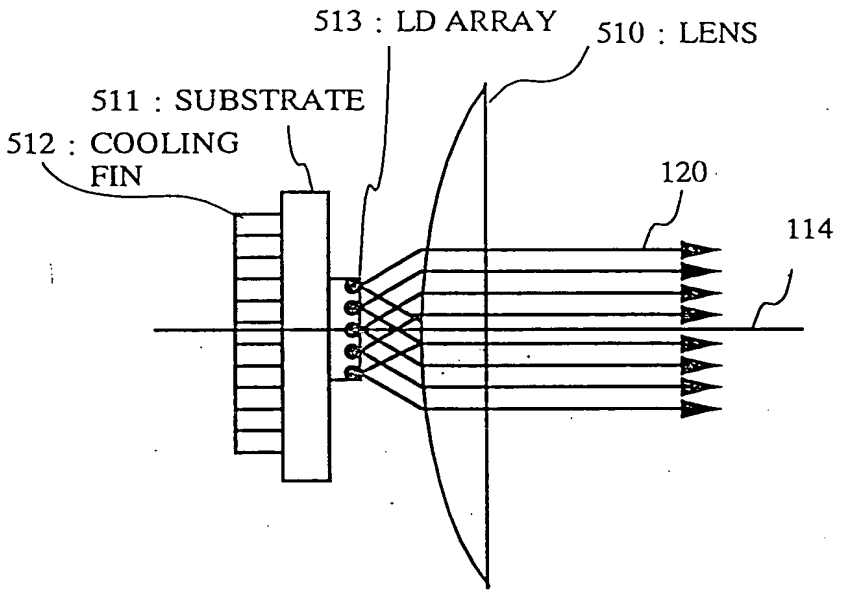

513 : LD ARRAY
510 : LENS
511 : SUBSTRATE
512 : COOLING FIN
120
114

Fig.69

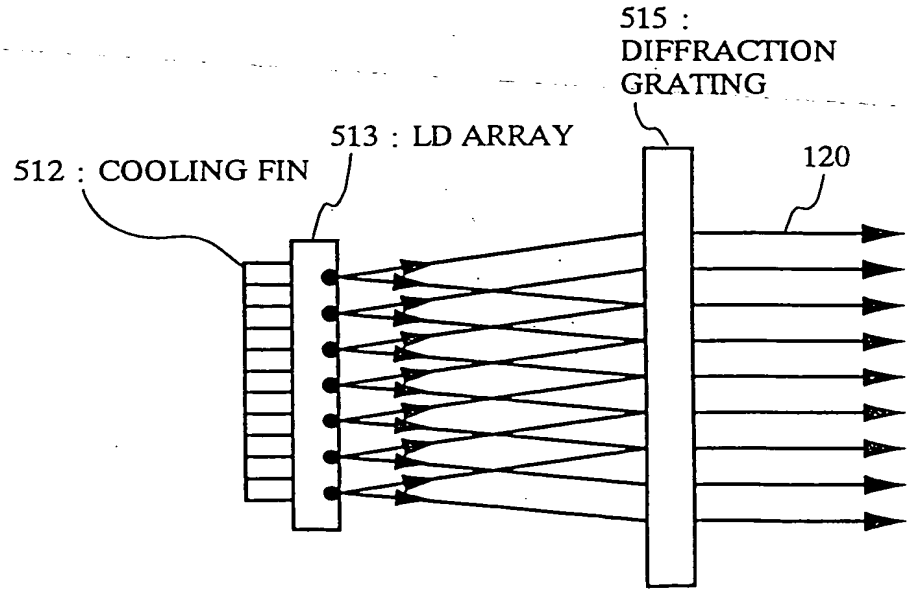

515 : DIFFRACTION GRATING
513 : LD ARRAY
512 : COOLING FIN
120

Fig.70

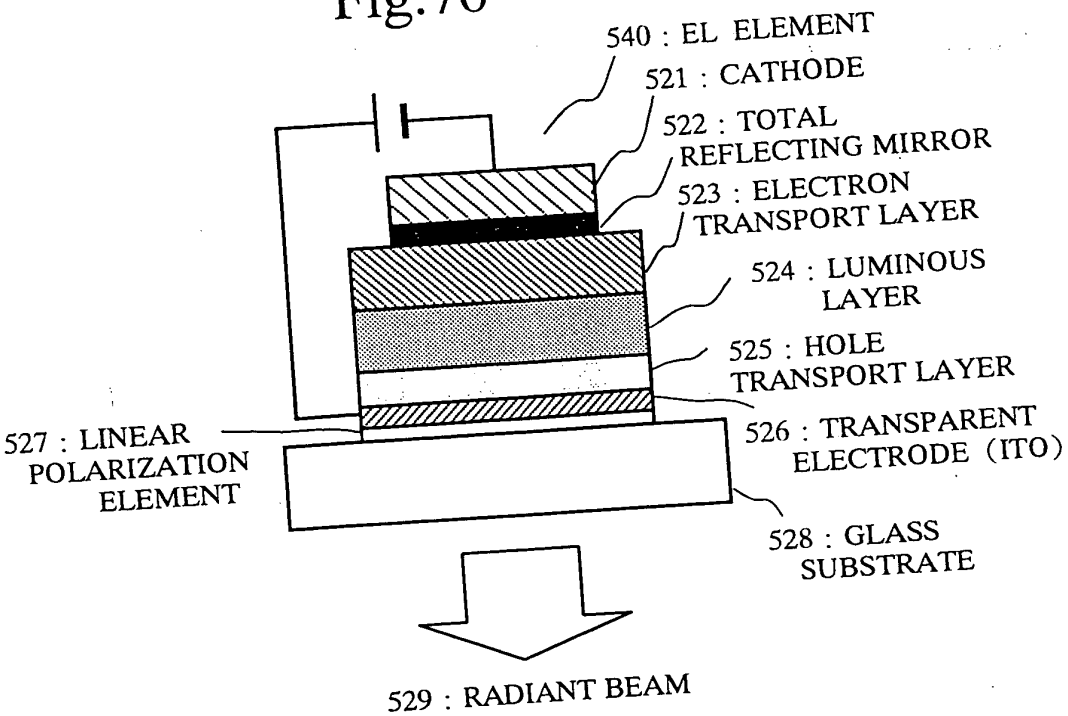

540 : EL ELEMENT
521 : CATHODE
522 : TOTAL REFLECTING MIRROR
523 : ELECTRON TRANSPORT LAYER
524 : LUMINOUS LAYER
525 : HOLE TRANSPORT LAYER
526 : TRANSPARENT ELECTRODE (ITO)
527 : LINEAR POLARIZATION ELEMENT
528 : GLASS SUBSTRATE
529 : RADIANT BEAM

Fig.71

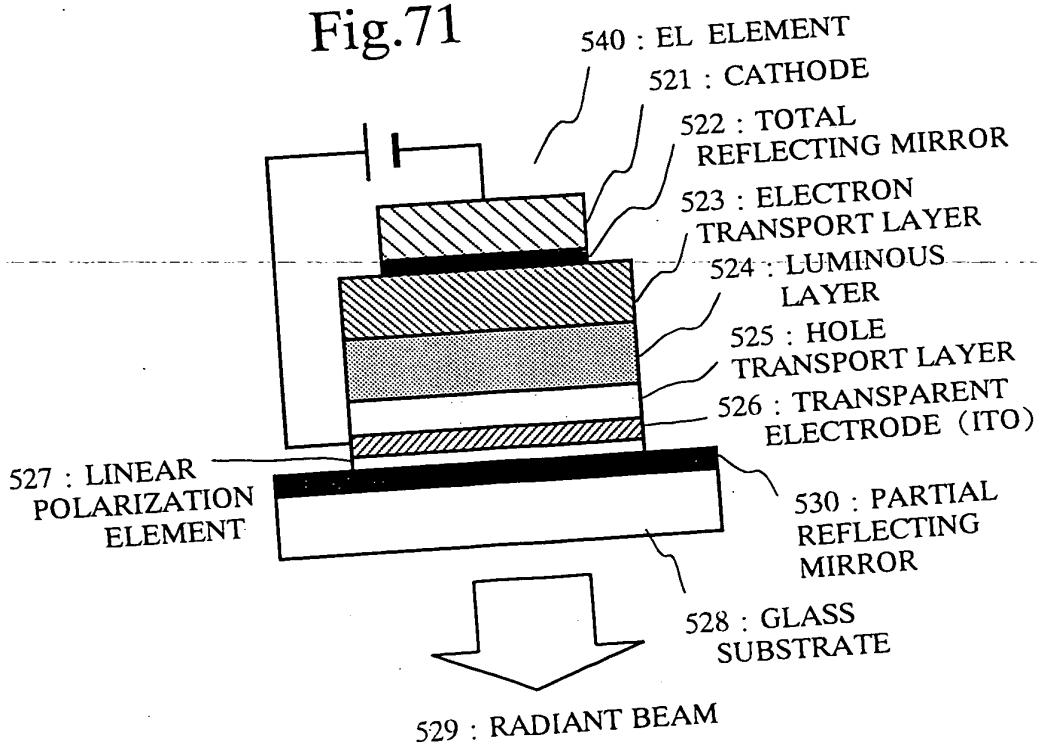

540 : EL ELEMENT
521 : CATHODE
522 : TOTAL REFLECTING MIRROR
523 : ELECTRON TRANSPORT LAYER
524 : LUMINOUS LAYER
525 : HOLE TRANSPORT LAYER
526 : TRANSPARENT ELECTRODE (ITO)
527 : LINEAR POLARIZATION ELEMENT
530 : PARTIAL REFLECTING MIRROR
528 : GLASS SUBSTRATE
529 : RADIANT BEAM

Fig.72

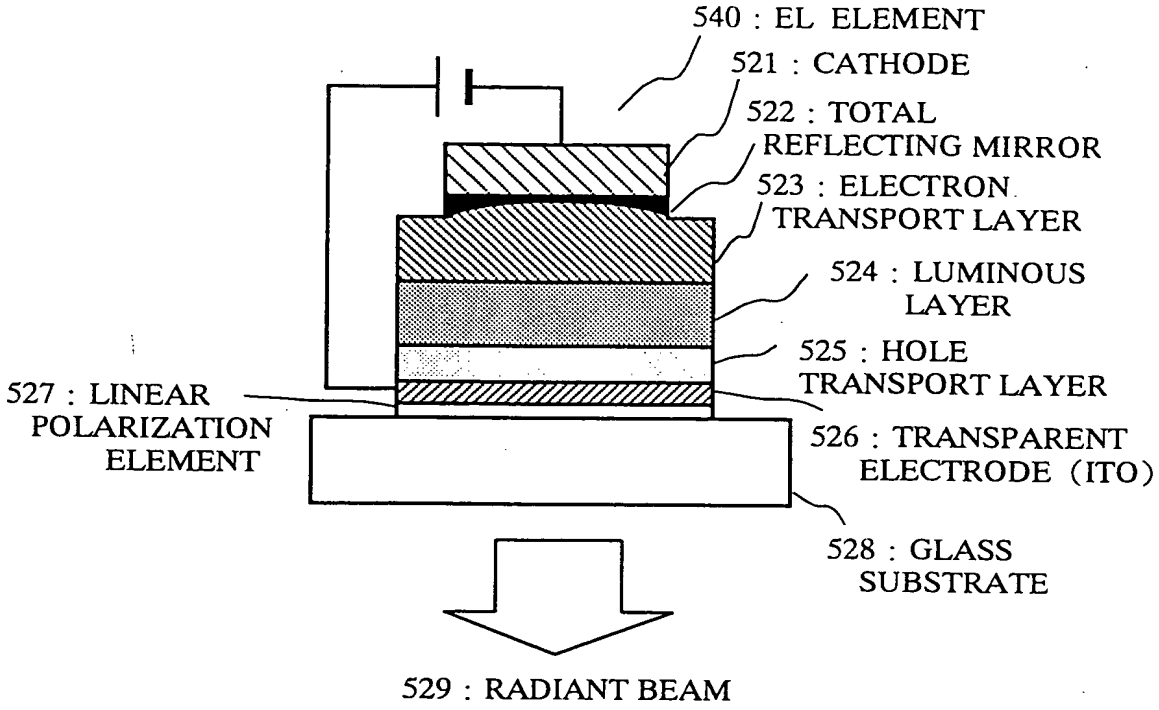

540 : EL ELEMENT
521 : CATHODE
522 : TOTAL REFLECTING MIRROR
523 : ELECTRON TRANSPORT LAYER
524 : LUMINOUS LAYER
525 : HOLE TRANSPORT LAYER
526 : TRANSPARENT ELECTRODE (ITO)
527 : LINEAR POLARIZATION ELEMENT
528 : GLASS SUBSTRATE
529 : RADIANT BEAM

Fig.73

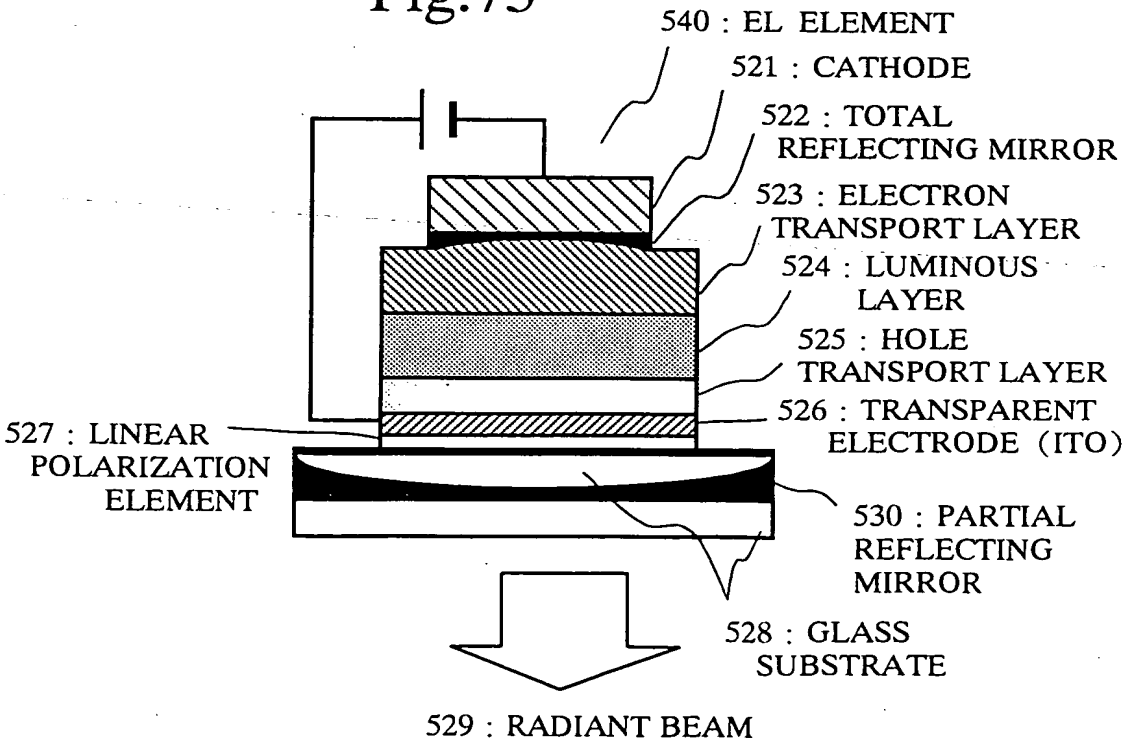
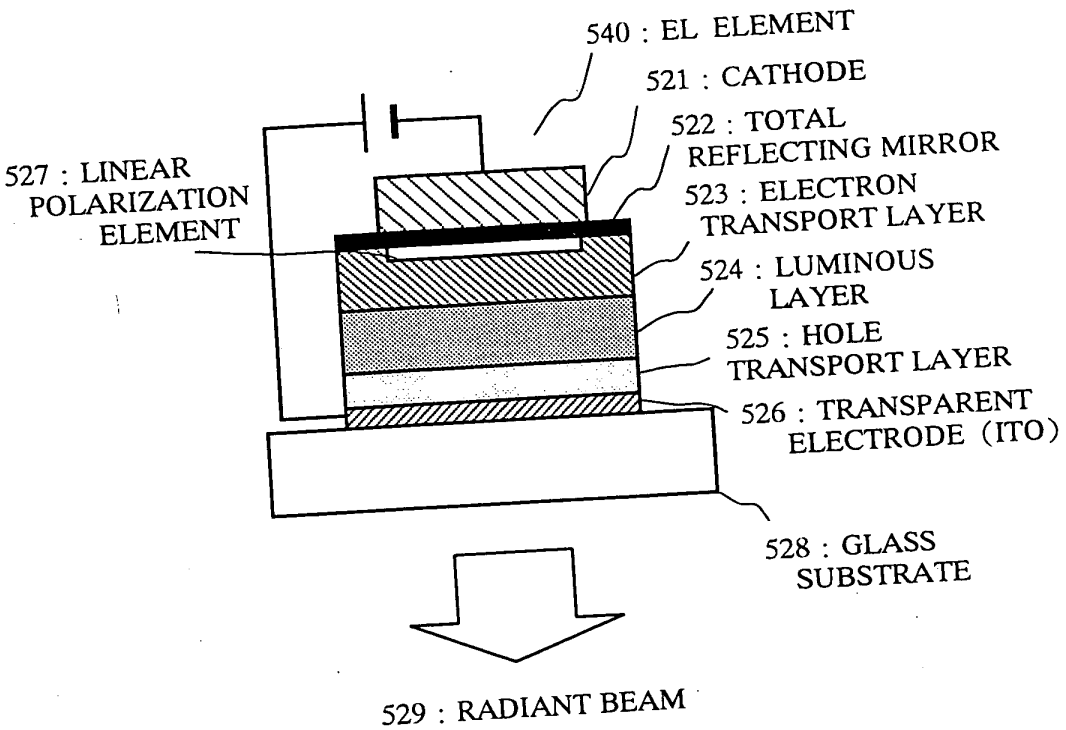
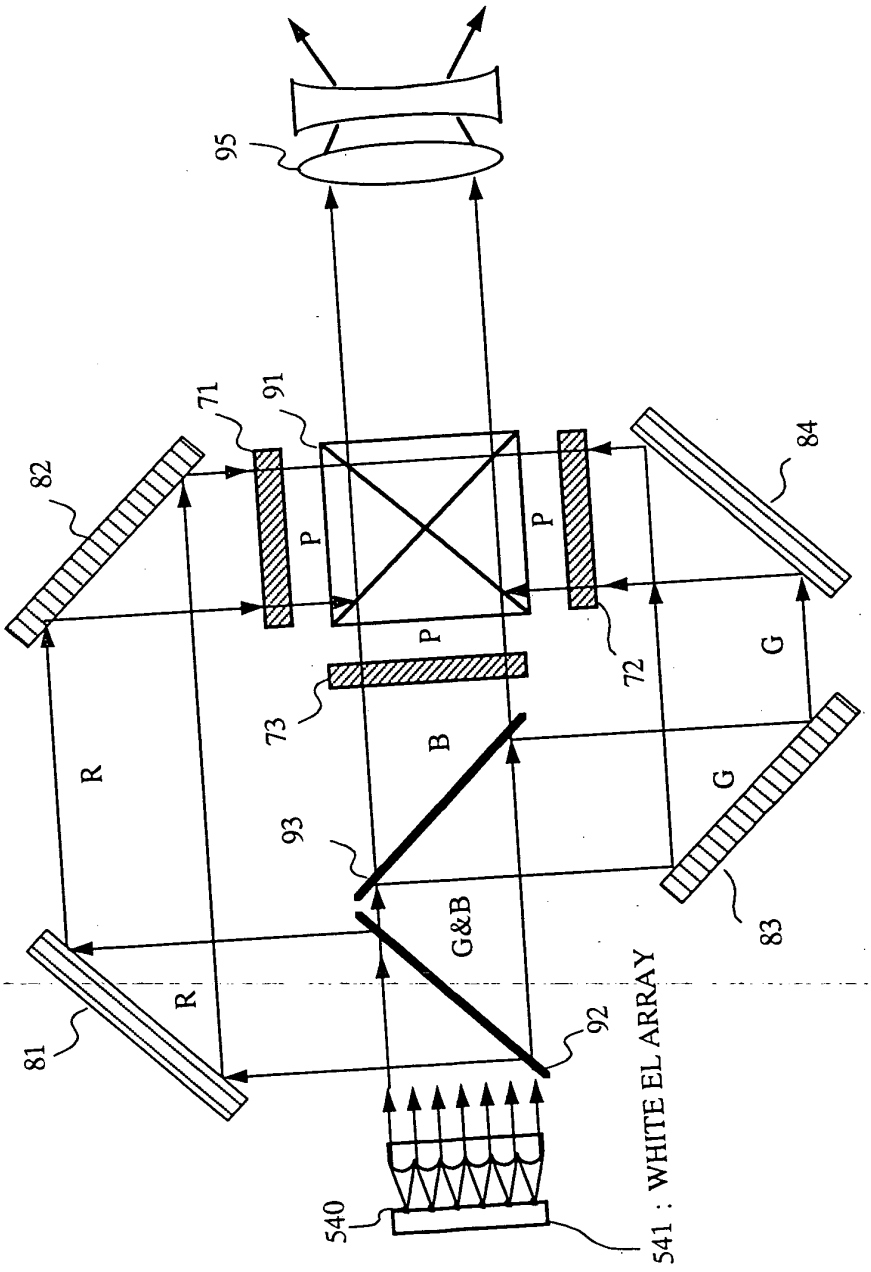

540 : EL ELEMENT
521 : CATHODE
522 : TOTAL REFLECTING MIRROR
523 : ELECTRON TRANSPORT LAYER
524 : LUMINOUS LAYER
525 : HOLE TRANSPORT LAYER
526 : TRANSPARENT ELECTRODE (ITO)
527 : LINEAR POLARIZATION ELEMENT
530 : PARTIAL REFLECTING MIRROR
528 : GLASS SUBSTRATE
529 : RADIANT BEAM

Fig.74



SUBSTITUTE SHEET (RULE 26)

Fig.75


95
71
91
82
84
P
P
P
72
73
G
B
R
93
G
G&B
83
R
81
92
540
541 : WHITE EL ARRAY

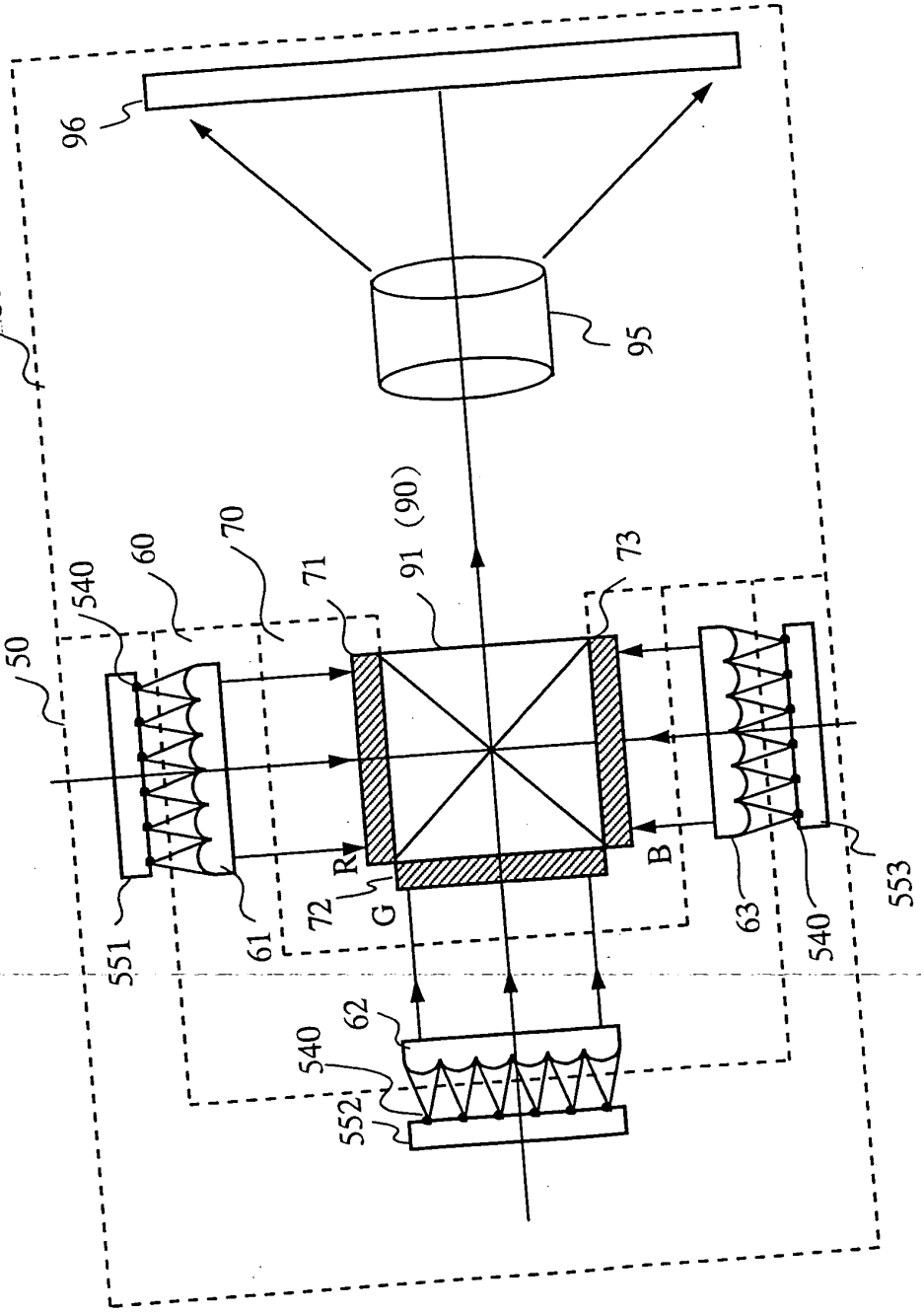


Fig.76

Fig.77

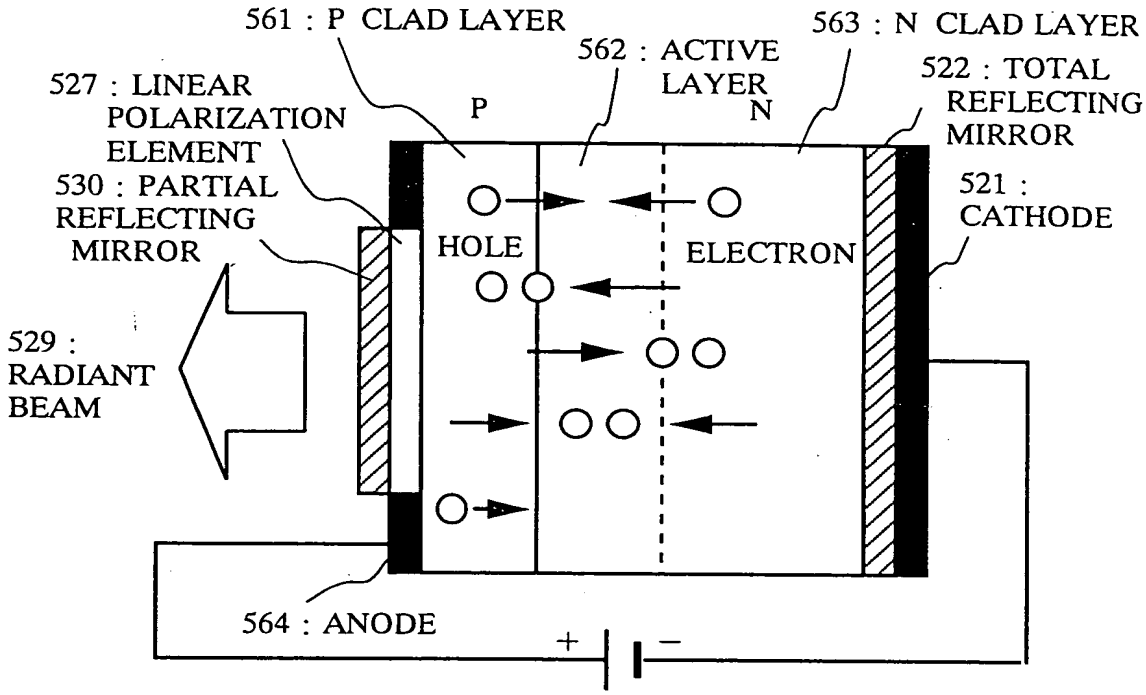

561 : P CLAD LAYER
562 : ACTIVE LAYER
563 : N CLAD LAYER
522 : TOTAL REFLECTING MIRROR
527 : LINEAR POLARIZATION ELEMENT
530 : PARTIAL REFLECTING MIRROR
521 : CATHODE
P
N
HOLE
ELECTRON
529 : RADIANT BEAM
564 : ANODE
+
−

Fig.78

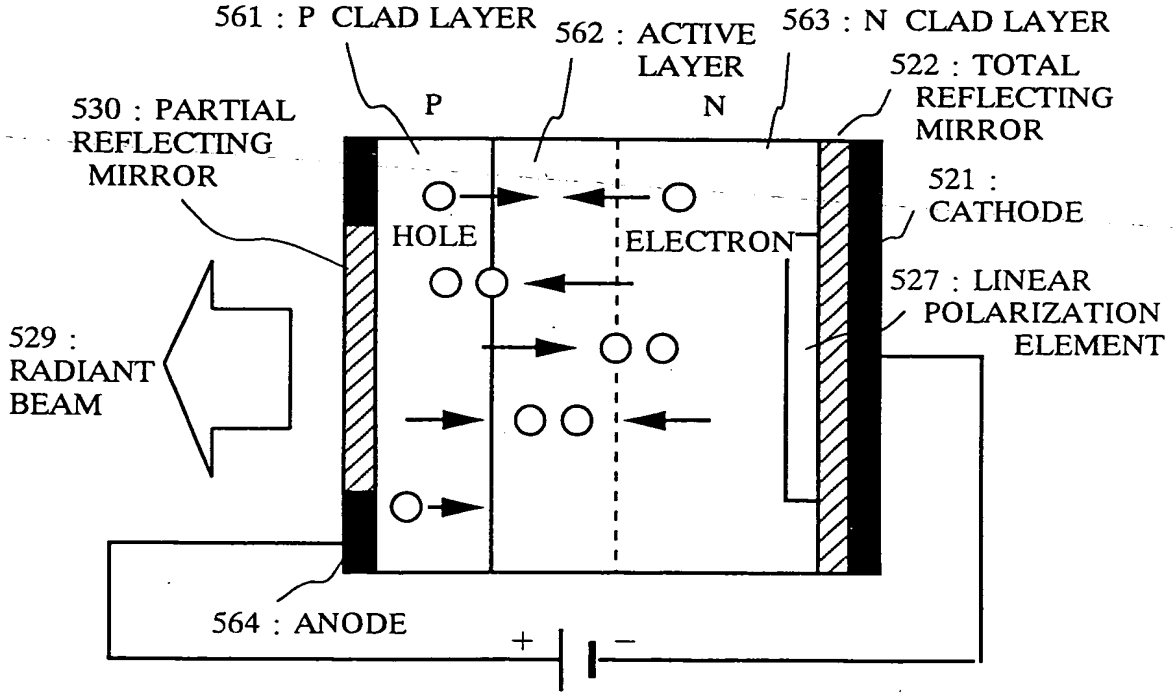

561 : P CLAD LAYER
562 : ACTIVE LAYER
563 : N CLAD LAYER
522 : TOTAL REFLECTING MIRROR
530 : PARTIAL REFLECTING MIRROR
P
N
521 : CATHODE
HOLE
ELECTRON
527 : LINEAR POLARIZATION ELEMENT
529 : RADIANT BEAM
564 : ANODE
+
−

Fig.79

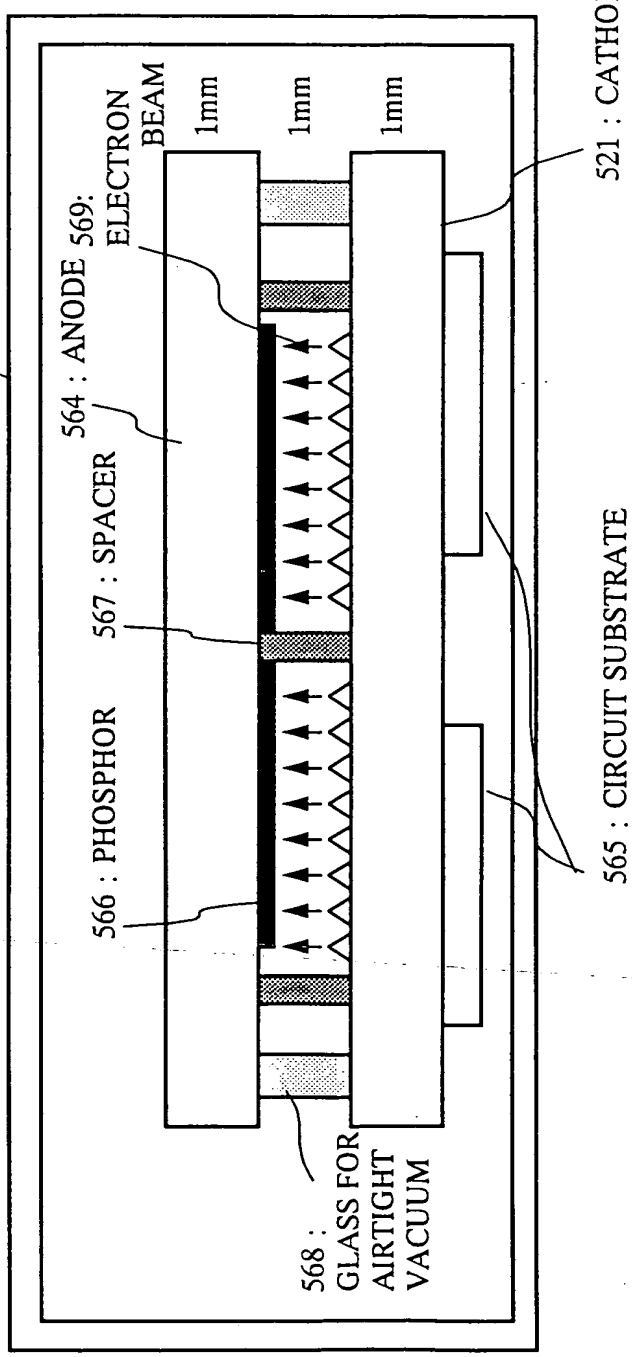
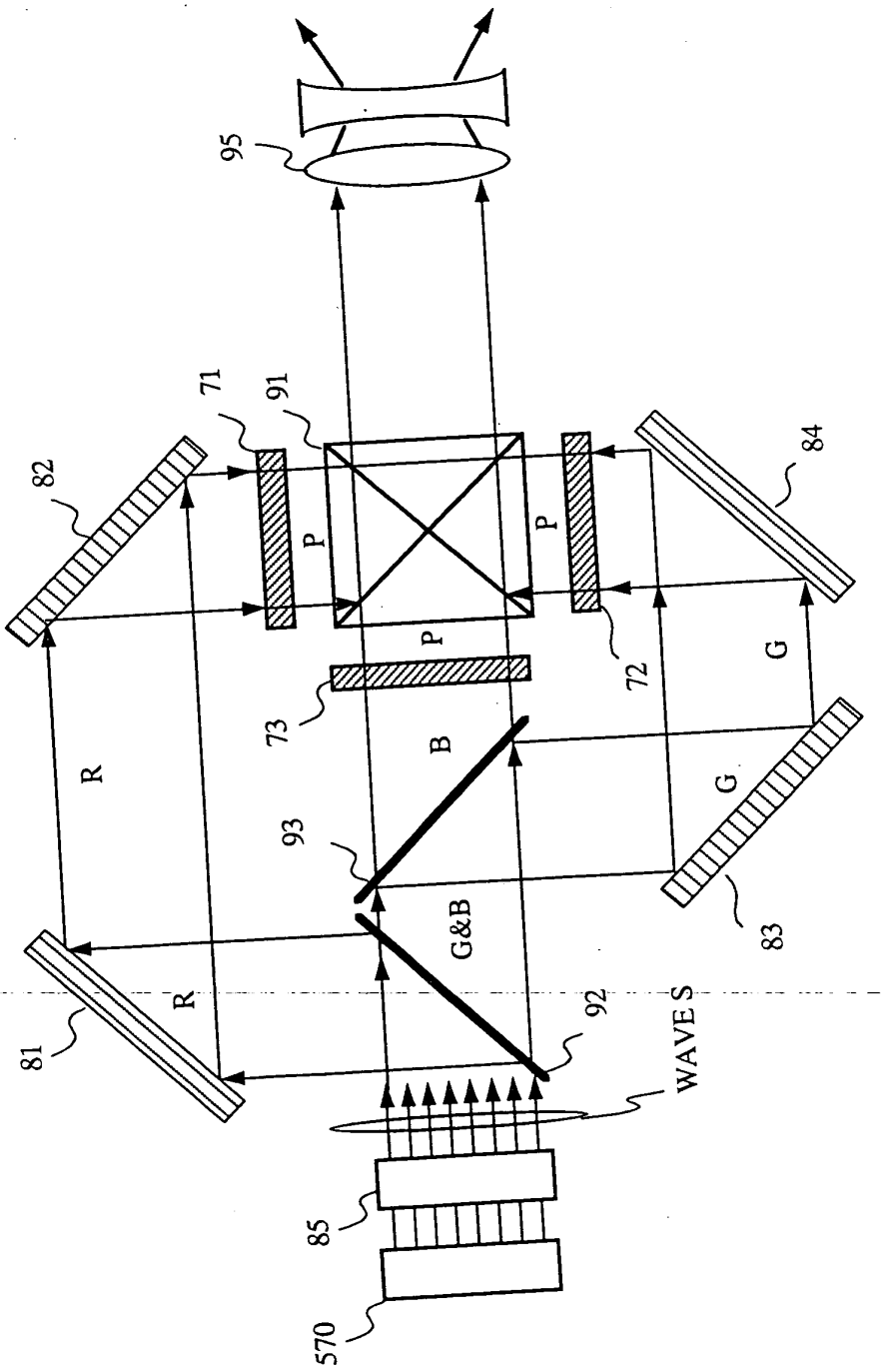

570 : FED
564 : ANODE
569: ELECTRON BEAM
1mm
1mm
1mm
521 : CATHODE
567 : SPACER
566 : PHOSPHOR
565 : CIRCUIT SUBSTRATE
568 : GLASS FOR AIRTIGHT VACUUM

Fig.80



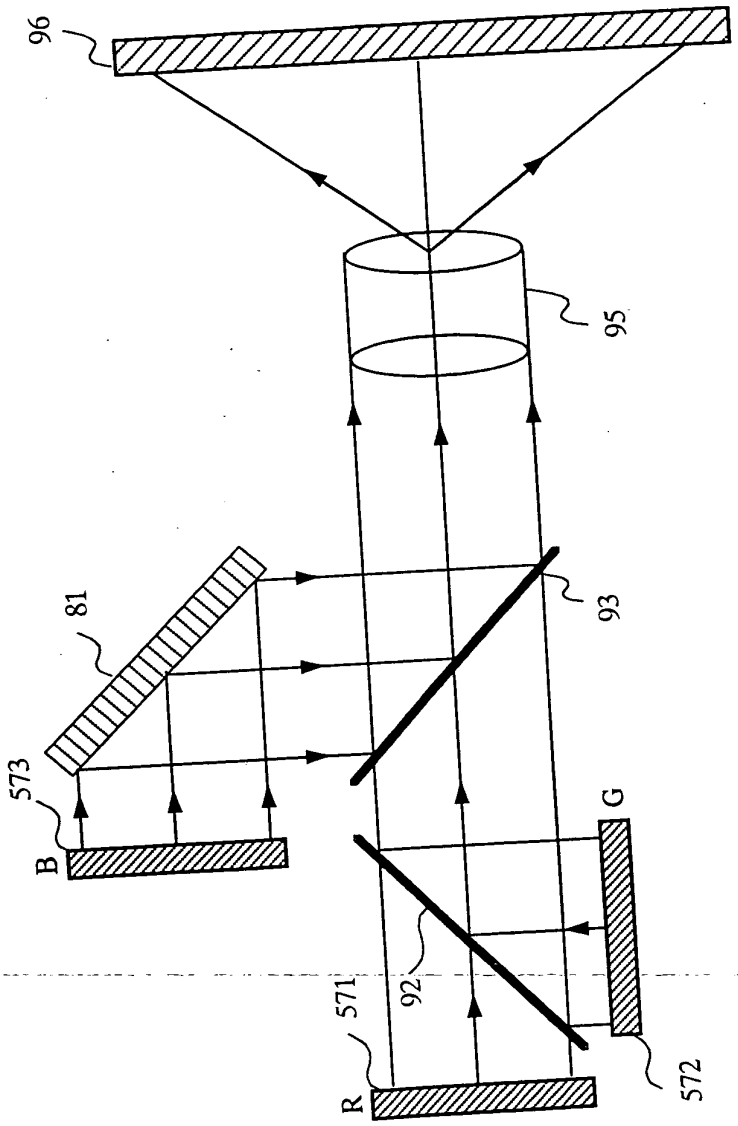


Fig.81

Fig.82

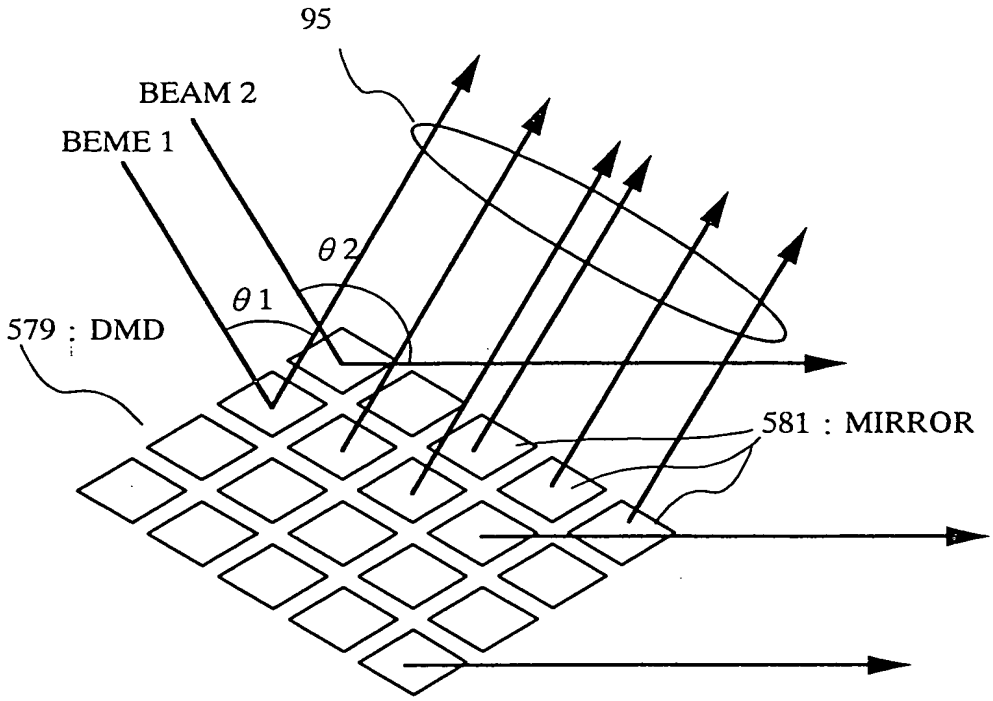


Fig.83

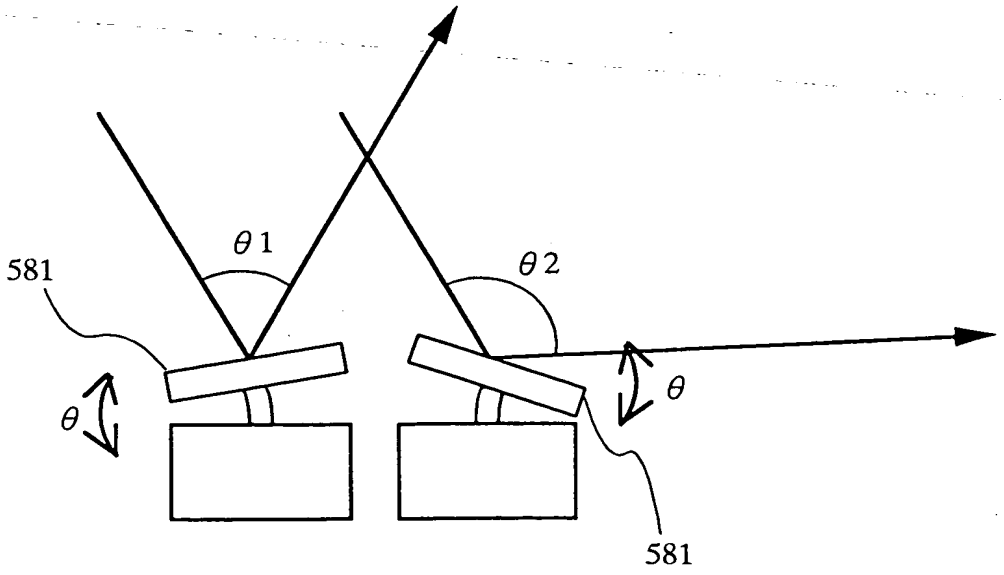


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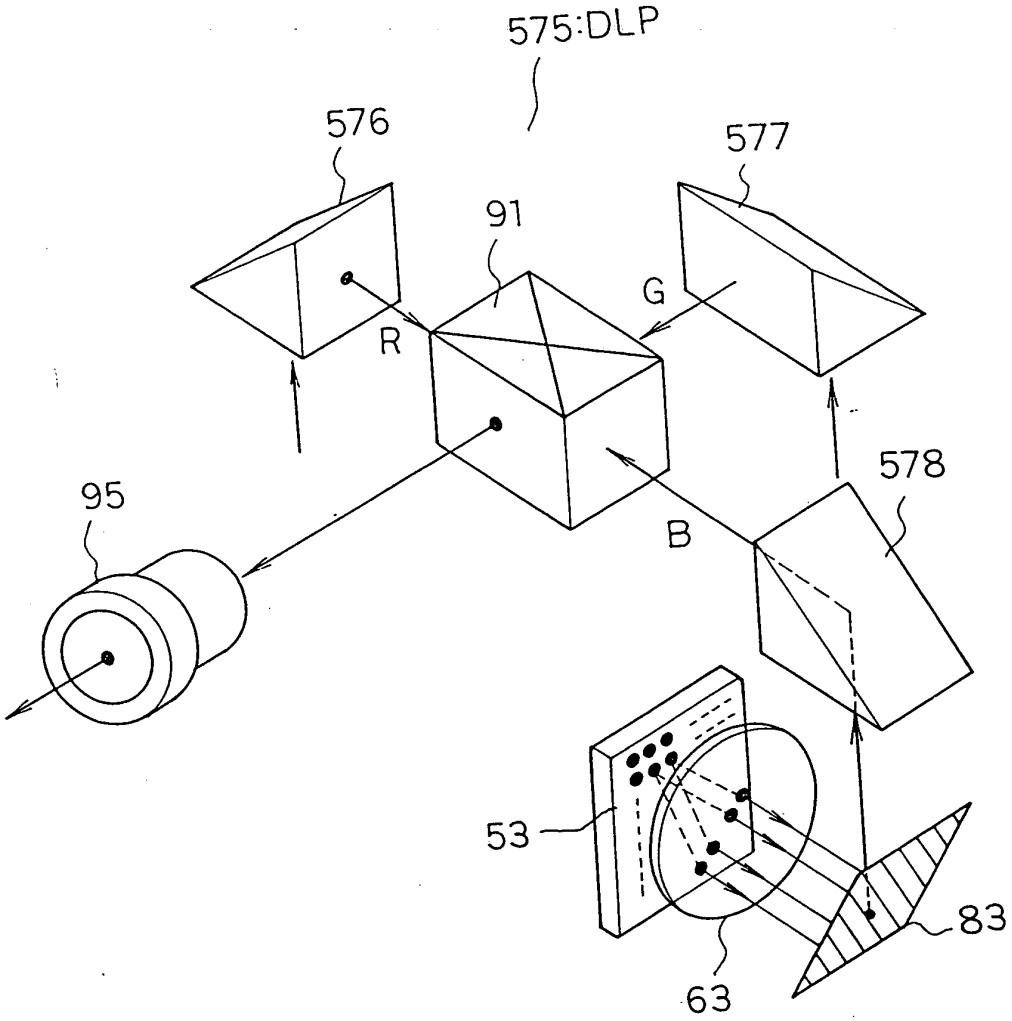
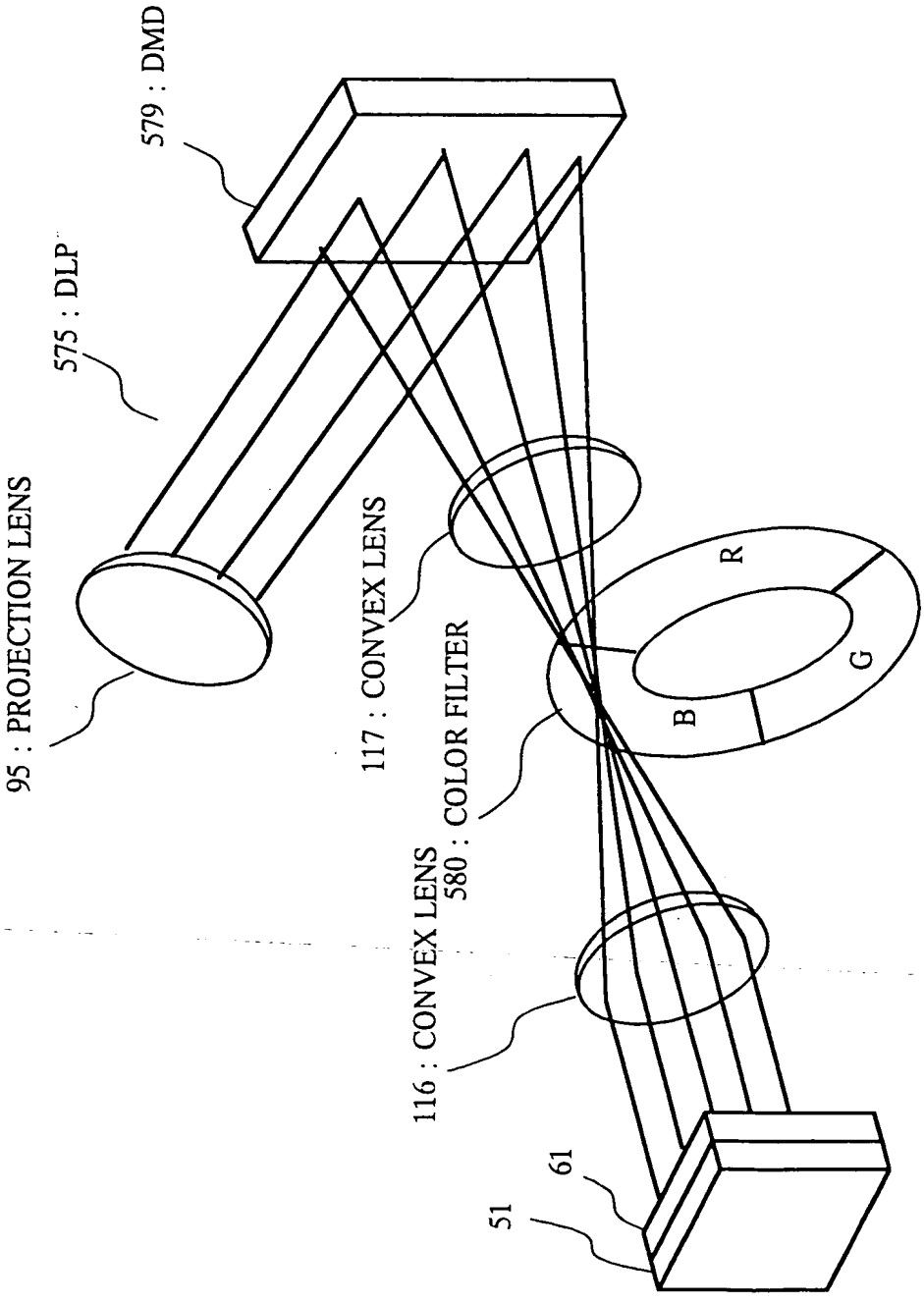
Fig.84



SUBSTITUTE SHEET (RULE 26)

Fig. 85


579 : DMD
575 : DLP
95 : PROJECTION LENS
117 : CONVEX LENS
580 : COLOR FILTER
116 : CONVEX LENS
51
61
R
G
B